HR580

Analytics and Reporting in HCM

PARTICIPANT HANDBOOK
INSTRUCTOR-LED TRAINING

Course Version: 15
Course Duration: 3 Day(s)
Material Number: 501251807

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Typographic Conventions

American English is the standard used in this handbook.

The following typographic conventions are also used.

This information is displayed in the instructor's presentation	
Demonstration	
Procedure	
Warning or Caution	
Hint	
Related or Additional Information	
Facilitated Discussion	
User interface control	*Example text*
Window title	*Example text*

Contents

Course Overview

TARGET AUDIENCE

This course is intended for the following audiences:

- Application Consultant
- Business Process Owner/Team Lead/Power User
- Data Consultant/Manager

UNIT 1 Human Capital Management (HCM) Reporting

Lesson 1

UNIT OBJECTIVES

- Outline HR reporting roles
- List the differences between flat and analytical reporting levels
- Summarize the available reporting tools

Unit 1
Lesson 1

Identifying the HCM Reporting Requirements and Toolsets

LESSON OVERVIEW

This lesson explains the essentials of reporting and provides an overview of the reporting tools.

Business Example

As the HR Analyst, you regularly require reports for senior management. A number of reporting tools are available to create the reports. You need to select and use the appropriate reporting tool based on the requirements.

For this reason, you require the following knowledge:

- An understanding of the reporting tools, Ad Hoc Query, and information systems
- An understanding of SAP NetWeaver Business Warehouse (SAP NetWeaver BW)

LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Outline HR reporting roles
- List the differences between flat and analytical reporting levels
- Summarize the available reporting tools

Roles for HCM Reporting

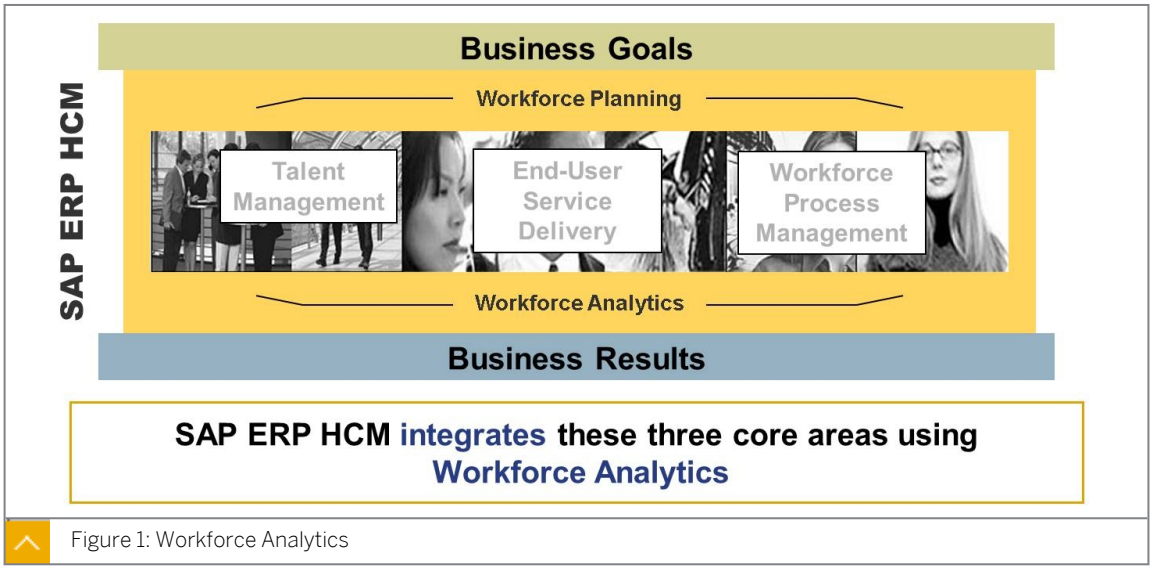


Figure 1: Workforce Analytics

SAP ERP Human Capital Management (SAP ERP HCM) consists of the following areas:

- Talent Management (TM)
- End-user service delivery
- Workforce process management

Human Resources Analysts are Human Resource (HR) experts. They are regarded as strategic partners of HR managers and managing directors of the company. They provide information that enables the monitoring of HR data with regard to the strategic goals of the company. This information is used as a basis for personnel planning, and enables the enterprise to satisfy statutory reporting requirements.

Human Resources Analysts perform the following tasks:

- Create, execute, and format numerous reports.
- Format and retrieve, in a timely manner, the relevant HR data to help HR managers and the managing directors of the enterprise to devise plans and make decisions.
- Process and retrieve in a timely manner the HR statistics required by law.

The following international single roles provide the authorizations required by Human Resources Analysts:

- Human Resources Analyst (SAP_HR_REPORTING)
- Time and Labor Analyst (SAP_HR_PT_TIME-LABOR-ANALYST)

To depict country-specific activities of the Human Resources Analyst composite role, single roles are provided for Canada (SAP_HR_PA_CA_HR-ADMINISTRATOR) and USA (SAP_HR_PA_US_HR-ADMINISTRATOR).

HCM Reporting Levels

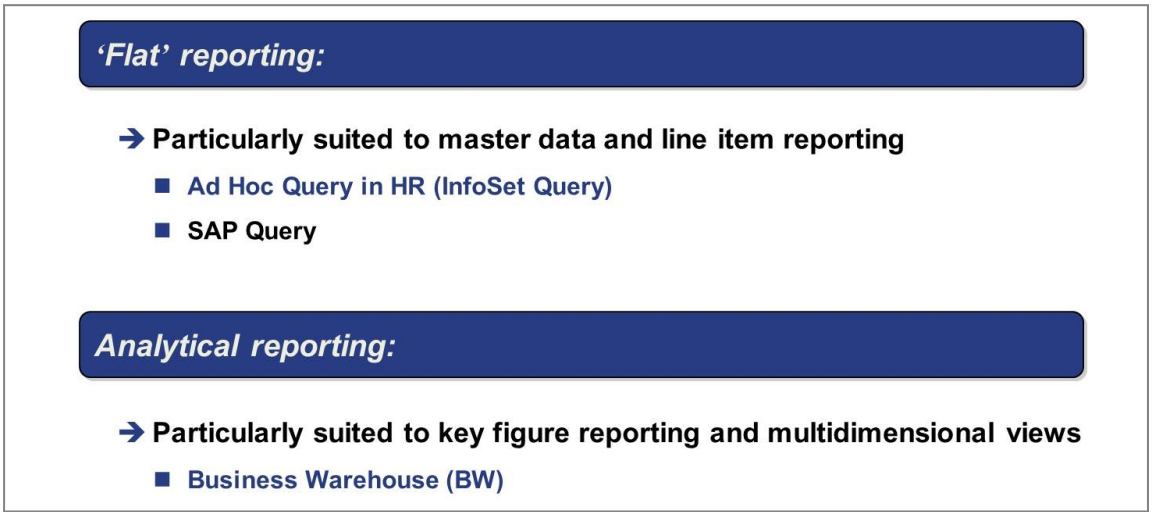


Figure 2: Reporting Levels

The levels of reporting are as follows:

- Flat reporting

  Flat reporting means reporting on uncompressed raw data from tables.

- Analytical reporting

Analytical reporting means using compressed data (key figures) as the basis for reporting.

Flat Reporting

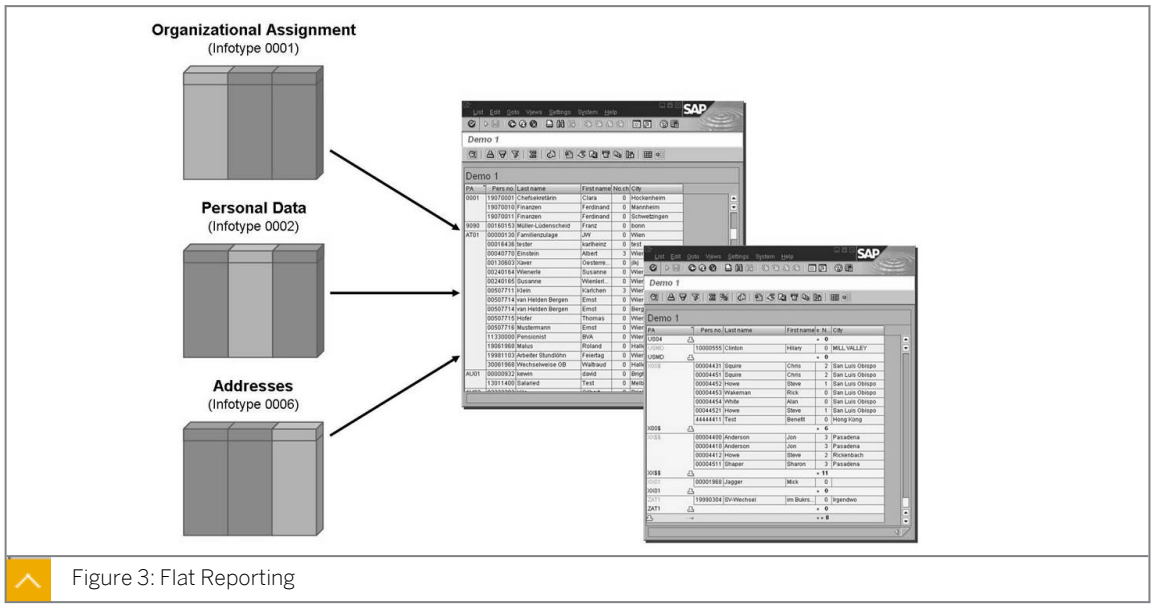


Figure 3: Flat Reporting

When flat reporting is performed, data is retrieved from various infotypes. The results are displayed in a flat list, which means that each line of output corresponds to one database entry. There are no views of different levels or segments of an InfoCube (IC) and its key figures and characteristics.

Query Views

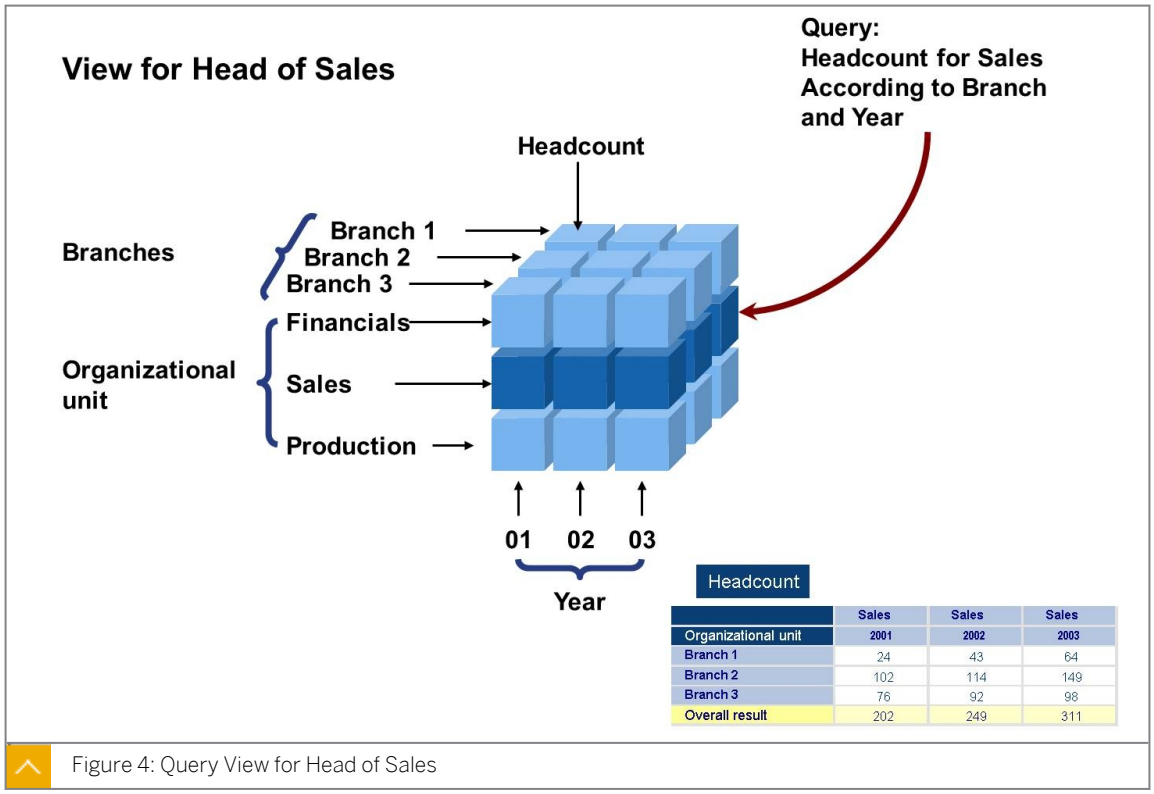


Figure 4: Query View for Head of Sales

When multidimensional reporting is performed using SAP Business Warehouse, data is prepared in a way that is particularly suitable for reporting. Data is stored and displayed in ICs. ICs contain key figures (such as headcount and leaving rate) and characteristics (such as gender and personnel area).

A single query, such as headcount, can be used to create different views of one or more ICs.

For example, a single query enables you to depict the number of employees (key figure) according to different criteria (characteristics) in a variety of views, and therefore for different target groups.

In the figure, the query view for Head of Sales depicts the headcount of the organizational unit for Sales by branch and year.

Query View for Management

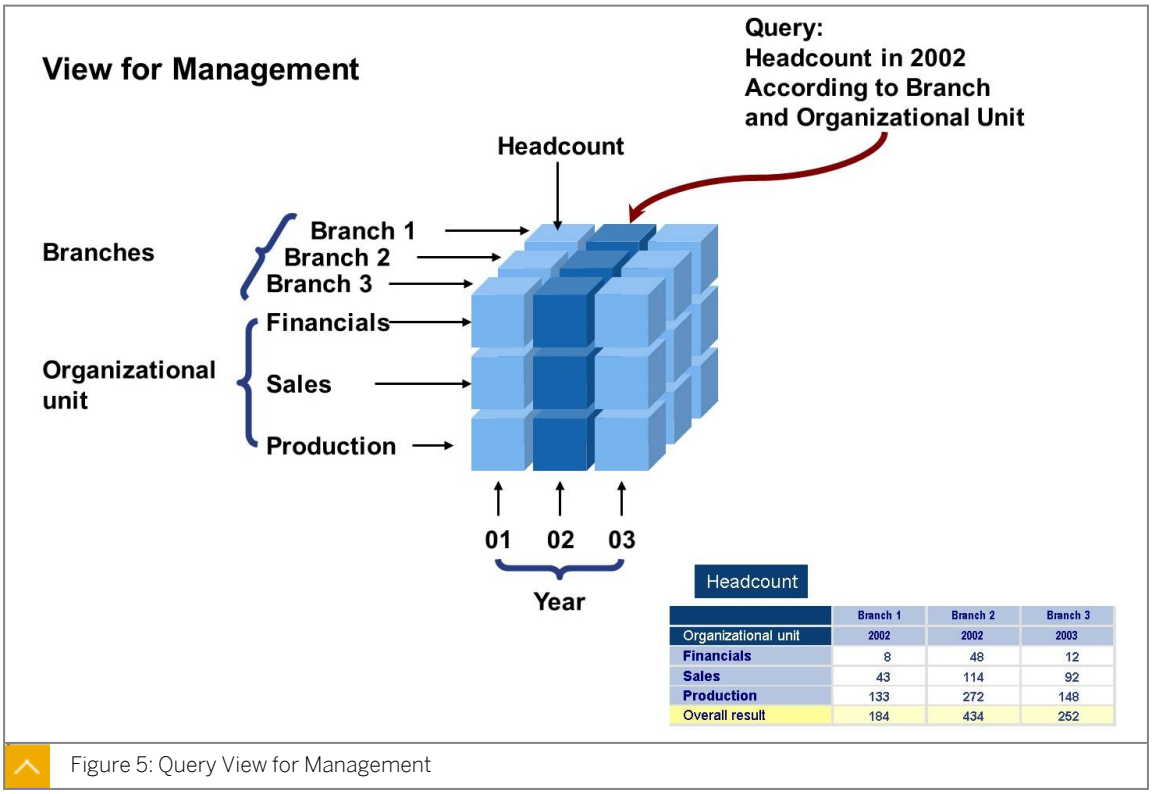


Figure 5: Query View for Management

The query view for management depicts the headcount for a particular year by branch and organizational unit.

Query navigation is a special feature of SAP Business Warehouse. Once a query has been determined, it is not frozen. Instead, you can use the navigation functions to create different query views. You can navigate through data, create various ad hoc data views, and drill down to the individual characteristics.

Query View for Head of the Controlling Department at a Branch

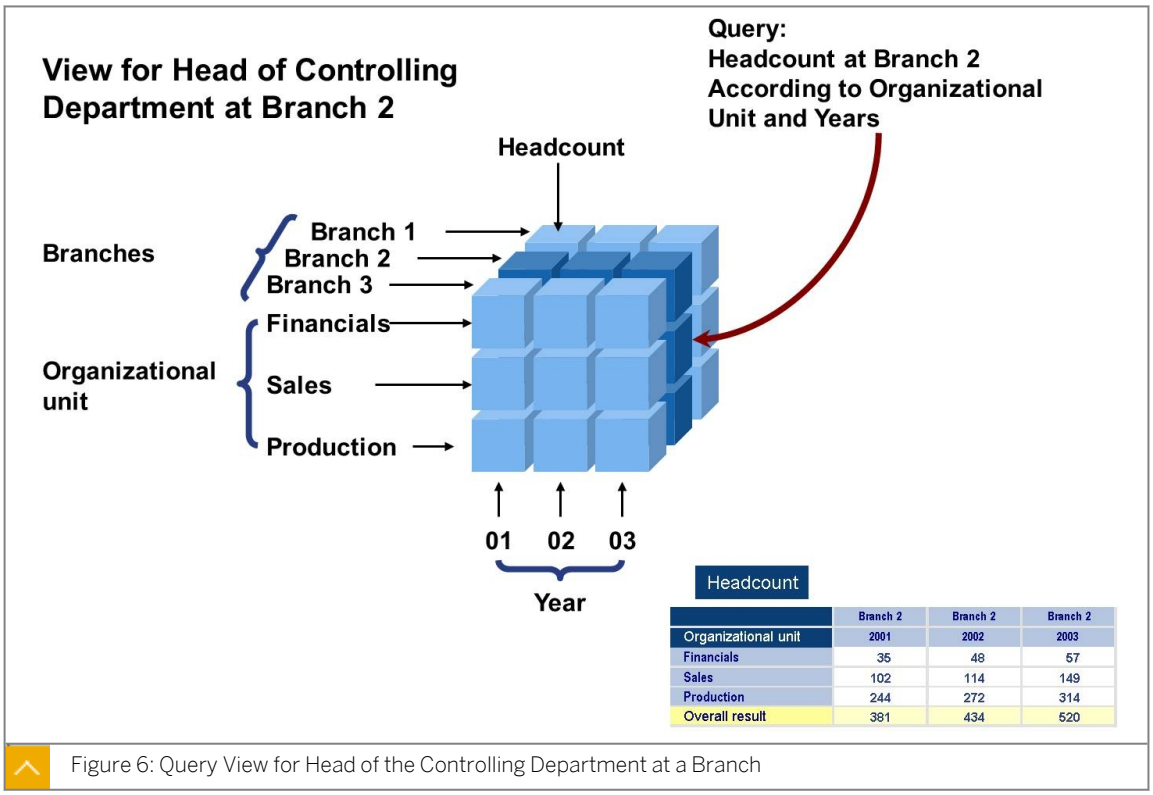


Figure 6: Query View for Head of the Controlling Department at a Branch

The query view for the head of the Controlling department at a branch depicts the headcount of a branch by organizational unit and year.

Ad Hoc QueryView

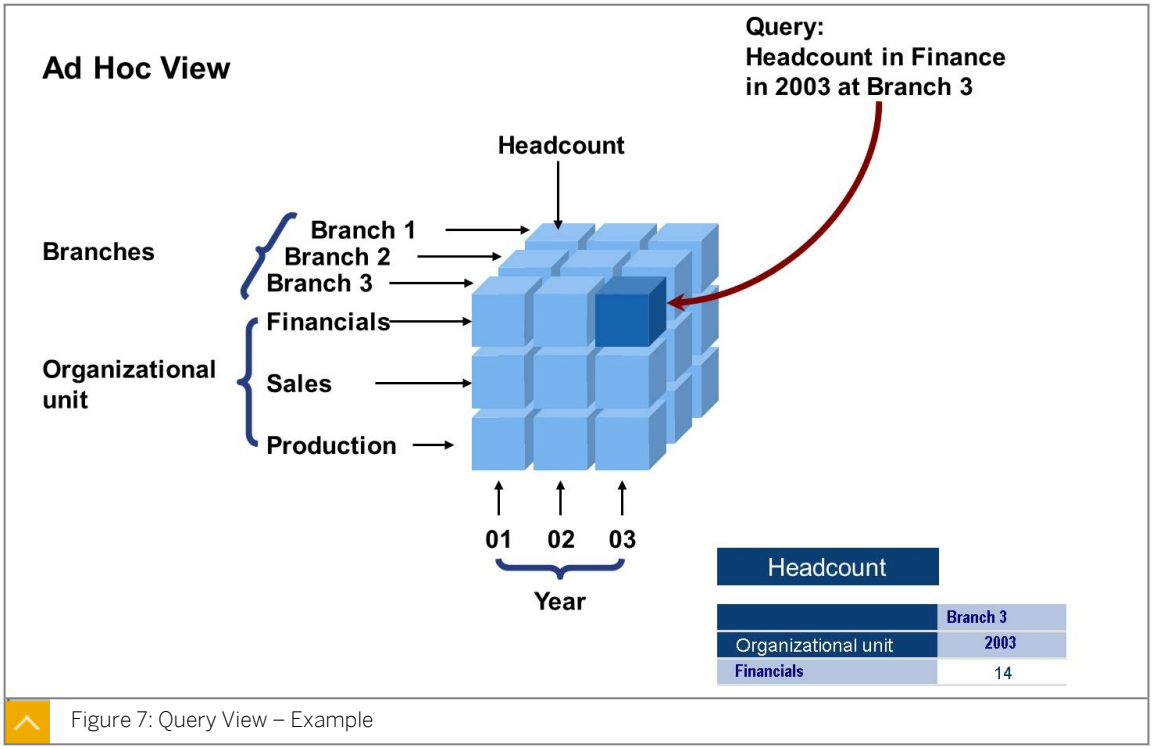


Figure 7: Query View – Example

The query in this figure shows the headcount for the Financials organizational unit by year and branch.

Tools for Reporting

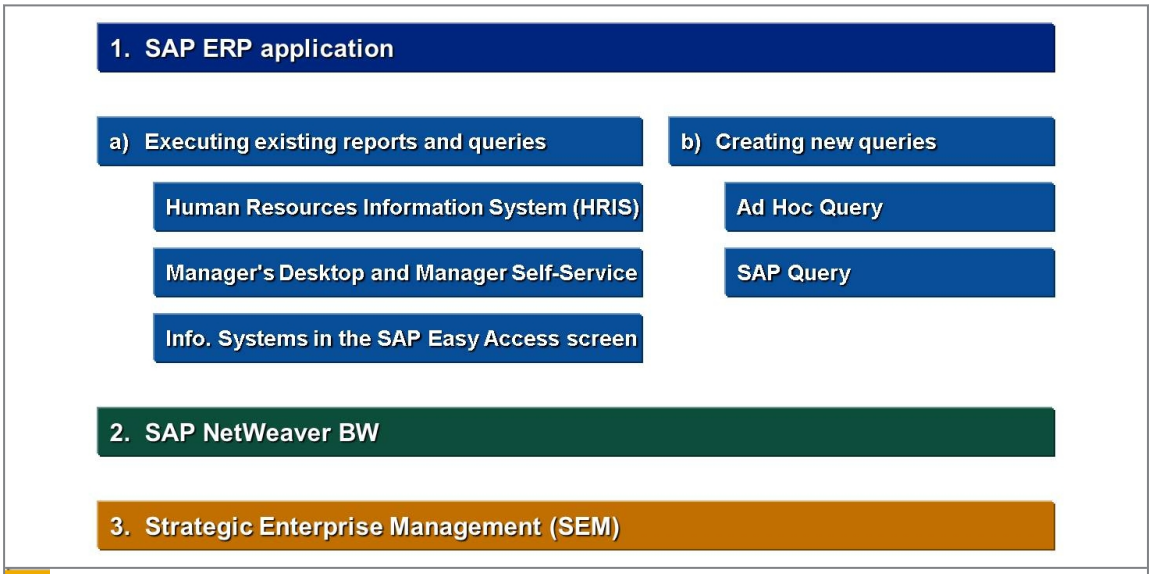


Figure 8: Overview of Reporting Tools

Depending on the system environment in which they are used, reporting tools are divided into the following categories:

- Reporting tools in the SAP ERP application (flat reporting)
- Reporting tools in SAP Business Warehouse (analytical reporting)

The tools included in SAP ERP for flat reporting enable you to perform the following tasks:

- Execute existing reports and queries.
- Create new queries and change existing queries.

The following tools are used to execute existing reports and queries:

- Manager’s Desktop (MDT) and Manager Self-Service (MSS) through the SAP portal
- Information Systems in the SAP Easy Access screen

You can create queries and change existing queries using the following reporting tools:

- Ad Hoc Query in HR (InfoSet Query)
- SAP Query

SAP Business Explorer (SAP BEx) tools are available in the front end in SAP BW.

Manager Self-Service (MSS)

Manager's Desktop (MDT)

Figure 9: Manager's Desktop

MDT is tailored to the daily needs of managers such as line managers. It helps them to perform their administrative, organizational, and strategic tasks.

MDT offers decision support to managers to help them make HR decisions and perform strategic planning activities. It does this by providing them with swift access to the required HR data of directly and indirectly subordinate employees. It then enables them to report on this data.

Manager Self-Service (MSS)

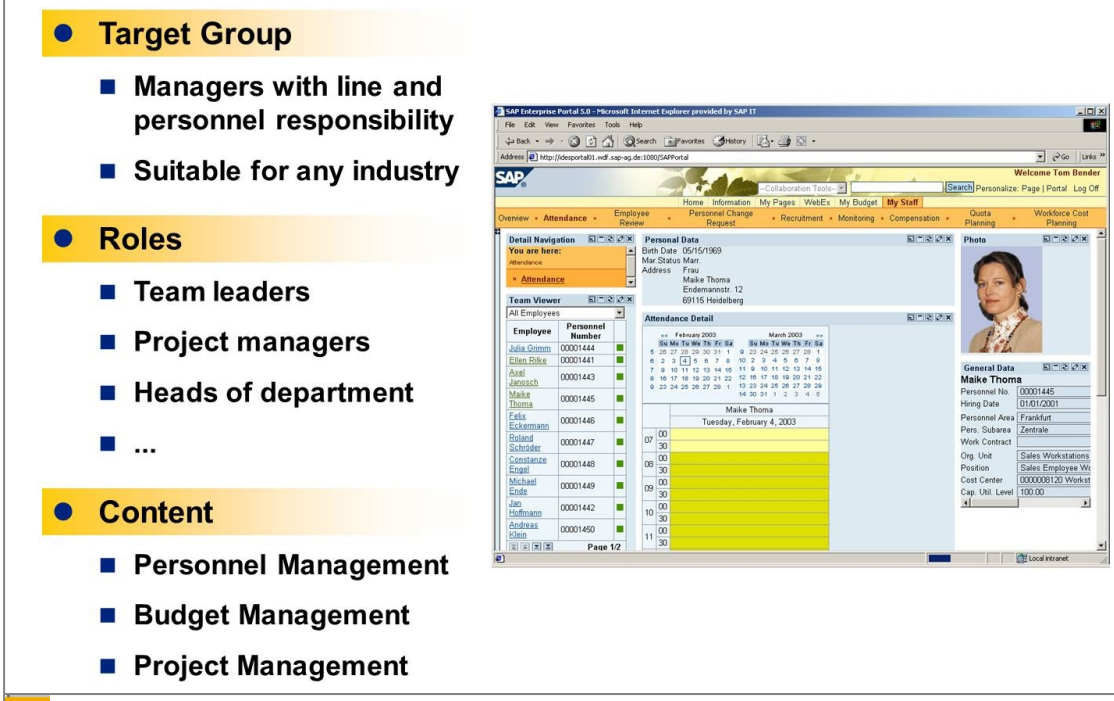


Figure 10: Manager Self-Service – Portal Solution

MSS helps managers perform their managerial tasks.

The functions are delivered in business packages, and are intuitive and easy to use. Extensive Customizing options enable you to make changes without the assistance of a developer.

The prerequisites for implementing MSS are as follows:

- Organizational Management needs to be active and the manager must hold the chief position. An organizational structure consisting of organizational units, positions, and person assignments must exist in the system.
- A checklist of prerequisites is available at https://www.service.sap.com/MSS.

Ad Hoc Query

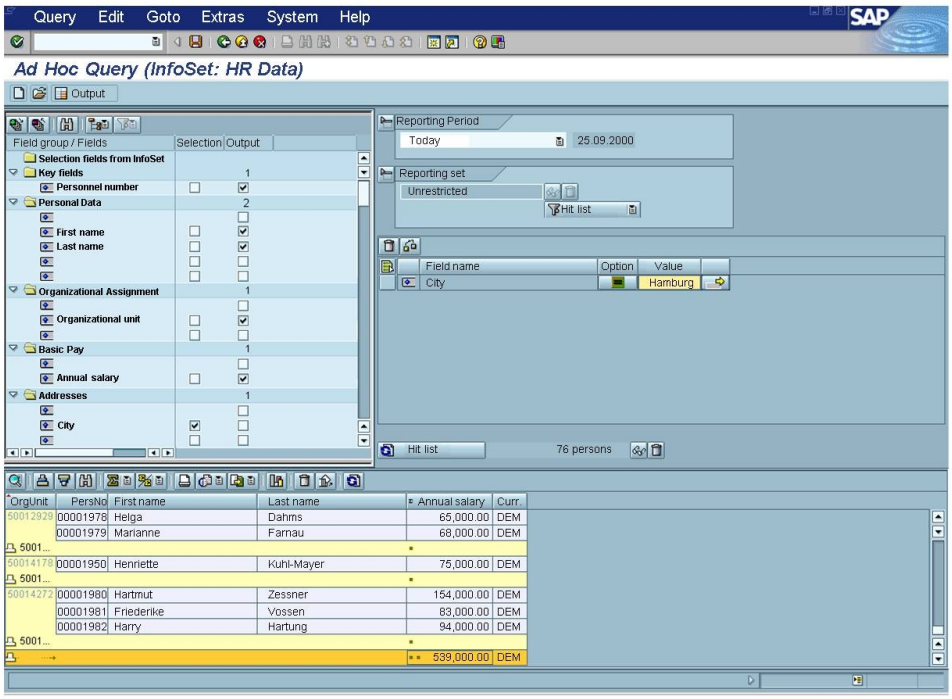


Figure 11: ZMigrated_mmcpLearningContent_02_Image_06.ppt

Ad Hoc Query is a simple and efficient tool for selecting and processing HR data. It is best suited to line item (flat) reporting.

Ad Hoc Query has the following advantages:

- Makes the report definition simple using drag and drop
- Enables you to report on data from Personnel Administration, Organizational Management, Training and Event Management, Recruitment, and Personnel Development
- Enables you to select output and selection fields as required
- Provides numerous report design options
- Displays the resulting set before output
- Selects and outputs the real data on one screen
- Enables you to determine results quickly because the database is accessed directly
- Creates logs

SAP Query

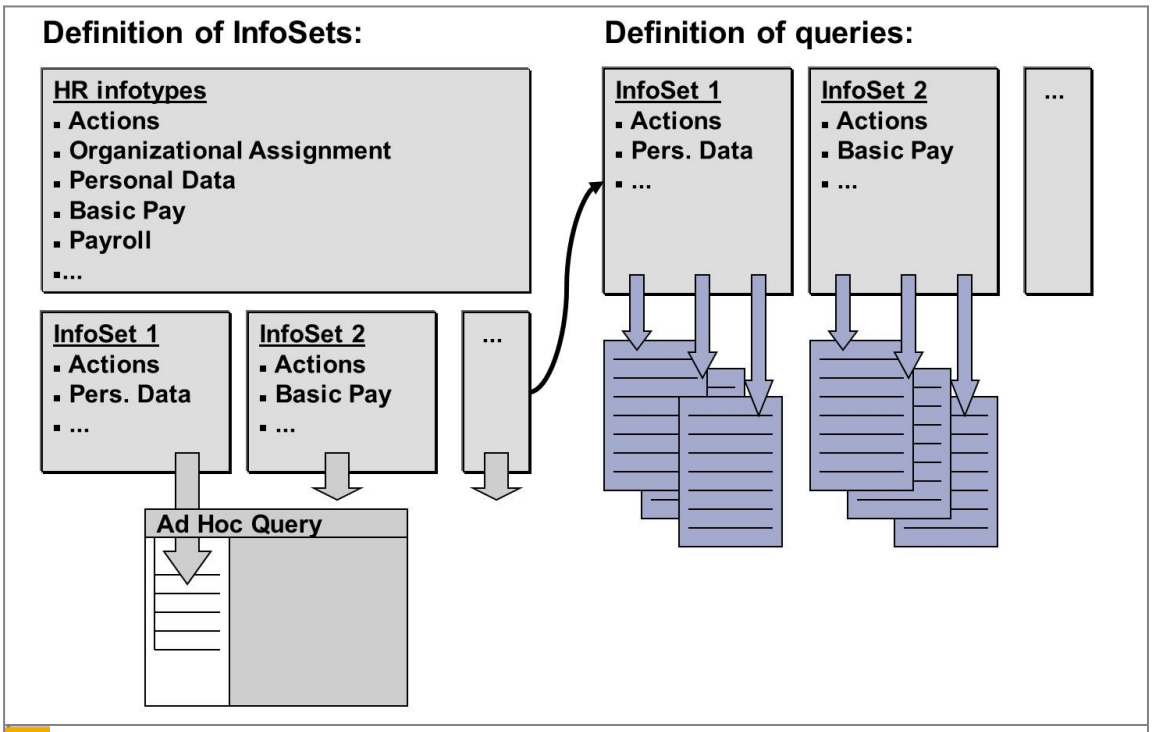


Figure 12: SAP Query

SAP Query performs the following functions for reporting in HR:

- Creates InfoSets which are the basis for defining reports using Ad Hoc Query and SAP Query
- Defines reports if they cannot be created using Ad Hoc Query (for example, if local fields are required)
- Uses InfoSets and user groups

SAP Business Warehouse

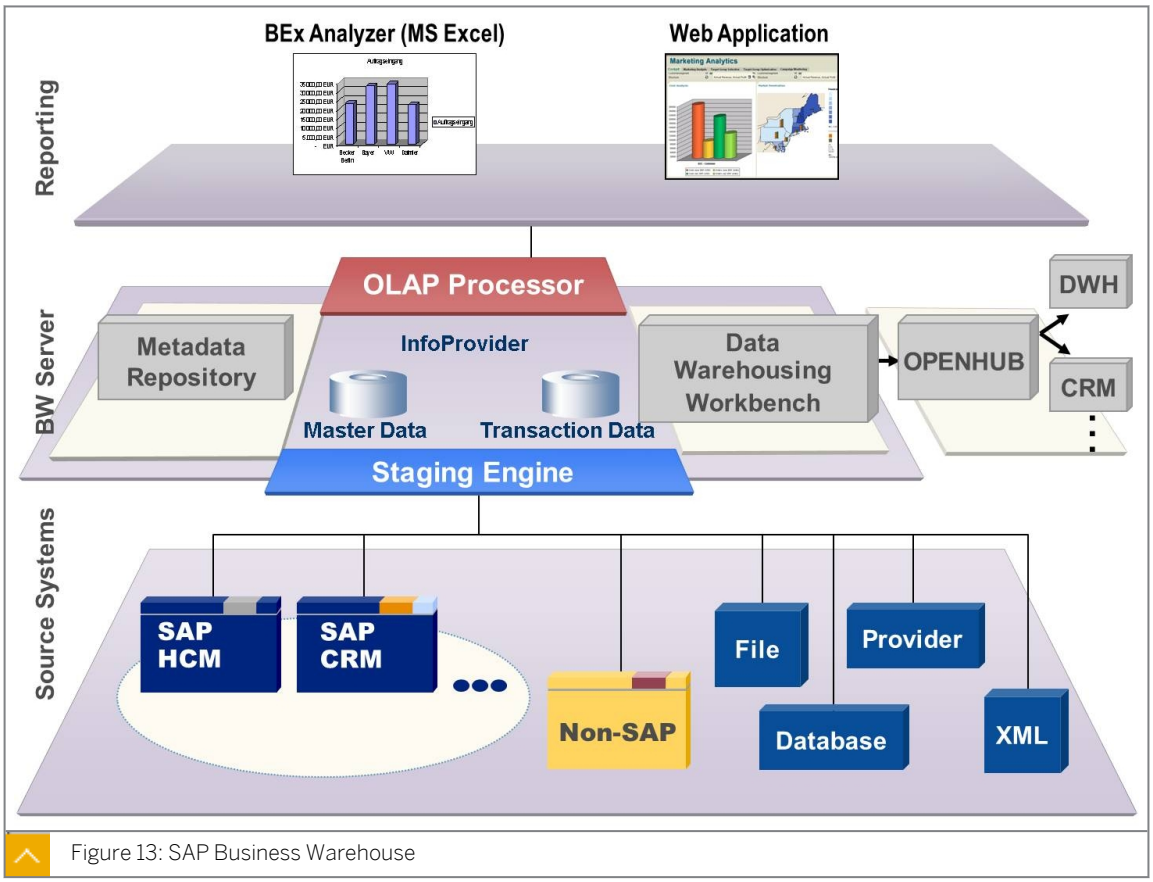


Figure 13: SAP Business Warehouse

SAP BW is used to meet analytical reporting requirements such as key figures and benchmarking.

The main components of SAP BW are as follows:

- SAP BW Server
- Data Warehousing Workbench
- SAP BEx

Reporting can be done using data extracted from SAP systems, non-SAP systems, or from external sources such as databases, online services, and the Internet. This data is managed on the SAP BW Server.

The Data Warehousing Workbench manages the various source systems. SAP BEx is used to display, analyze, and process the reports.

LESSON SUMMARY

You should now be able to:

- Outline HR reporting roles
- List the differences between flat and analytical reporting levels
- Summarize the available reporting tools

Learning Assessment

1. As a prerequisite for Manager Self-Service (MSS), an organizational structure consisting of organizational units, positions, and person assignments must exist in the system.

   Determine whether this statement is true or false.

   - ☐ True
   - ☐ False

2. Flat reporting is reporting on uncompressed raw data from tables.

   Determine whether this statement is true or false.

   - ☐ True
   - ☐ False

3. Which query technique is best suited for flat reporting?

   Choose the correct answer.

   - ☐ **A** Ad Hoc Query
   - ☐ **B** Business Warehouse Query
   - ☐ **C** External Query
   - ☐ **D** Internal Query

Learning Assessment - Answers

1. As a prerequisite for Manager Self-Service (MSS), an organizational structure consisting of organizational units, positions, and person assignments must exist in the system.

   Determine whether this statement is true or false.

   - [X] True
   - [ ] False

2. Flat reporting is reporting on uncompressed raw data from tables.

   Determine whether this statement is true or false.

   - [X] True
   - [ ] False

3. Which query technique is best suited for flat reporting?

   Choose the correct answer.

   - [X] A Ad Hoc Query
   - [ ] B Business Warehouse Query
   - [ ] C External Query
   - [ ] D Internal Query

UNIT 2 Manager Self-Services

UNIT OBJECTIVES

- Outline the structure of MSS
- List the personnel change request documents available in MSS
- Outline the SAP Business Warehouse queries available in MSS
- Outline the functions of NWBC

Unit 2
Lesson 1

Reporting on Employee Data with Manager Self-Service

LESSON OVERVIEW

This lesson explains how to work with Manager Self-Service (MSS).

Business Example

You are employed in the Human Resources (HR) department of an organization. As part of your job, you need an easy-to-use tool that includes budget tracking, and can be used by your managers on a Web interface. For this reason, you require the following knowledge:

- An understanding of how to work with MSS

LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Outline the structure of MSS
- List the personnel change request documents available in MSS
- Outline the SAP Business Warehouse queries available in MSS

Manager Self-Service Basics

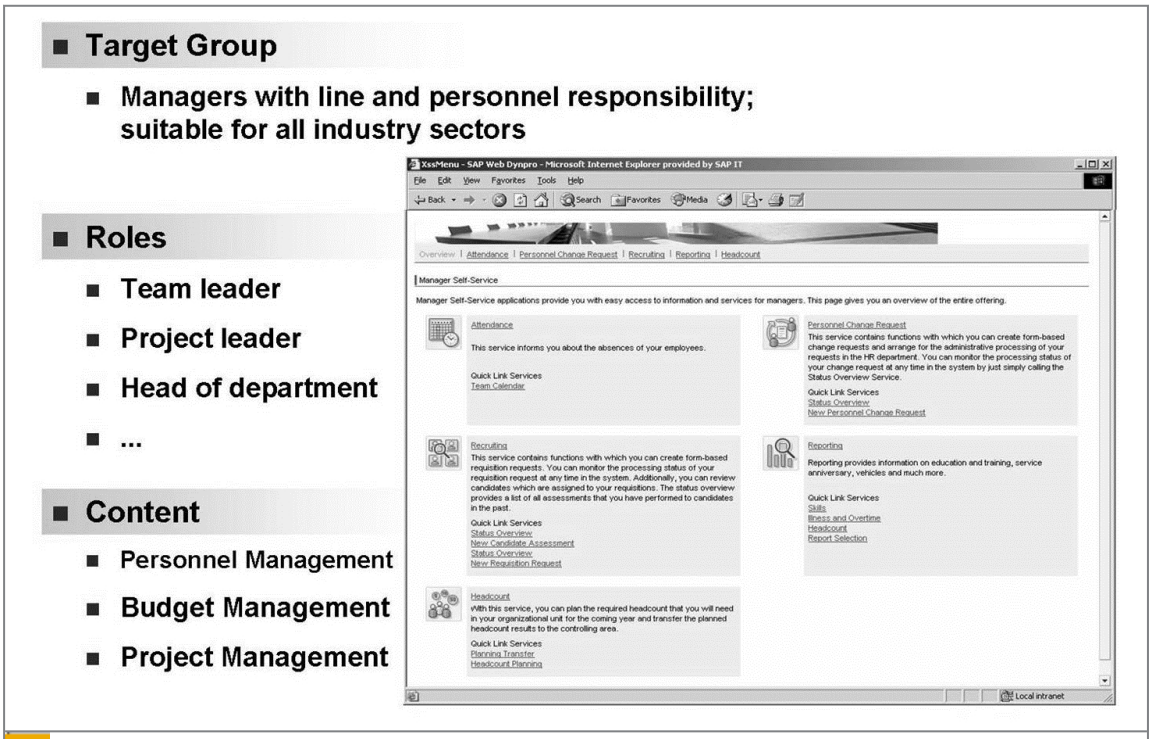


Figure 14: MSS – Portal Solution

In the portal solution of MSS, functions are delivered in business packages.

The MSS business package supports line managers, project managers, and team leaders in their daily tasks, and gives them access to information that is relevant to them.

Managers with personnel responsibilities obtain information about their employees when they log on to the portal and select the relevant page. This enables them to see which of their employees are at work and which are currently on leave.

Managers can trigger HR business processes directly from the portal. For example, after a review, the manager can trigger a special payment for an employee from the portal.

MSS is also used in budget and project management.

MSS contains multiple reporting and evaluation options based on standard reporting and SAP Business Warehouse (SAP BW). However, customers who do not have SAP BW can use MSS.

Prerequisites for MSS in a Portal

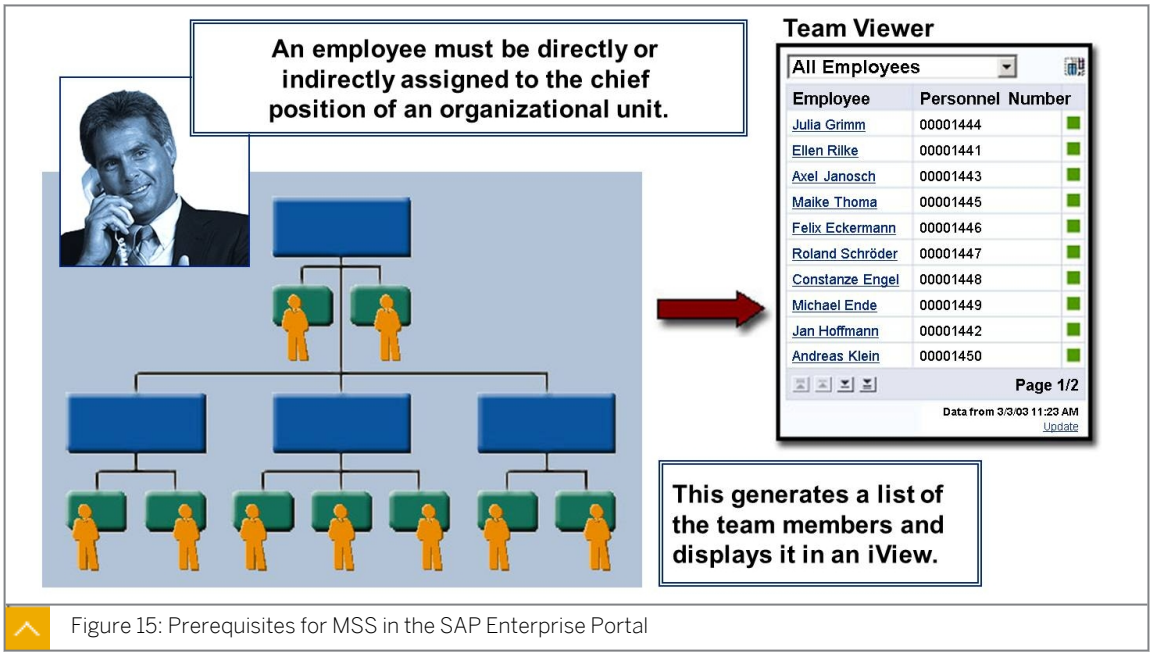


Figure 15: Prerequisites for MSS in the SAP Enterprise Portal

To use MSS effectively in your company, you must have an organizational plan in Organizational Management.

The chief position of an organizational unit must be assigned uniquely to one employee.

Personnel Change Requests

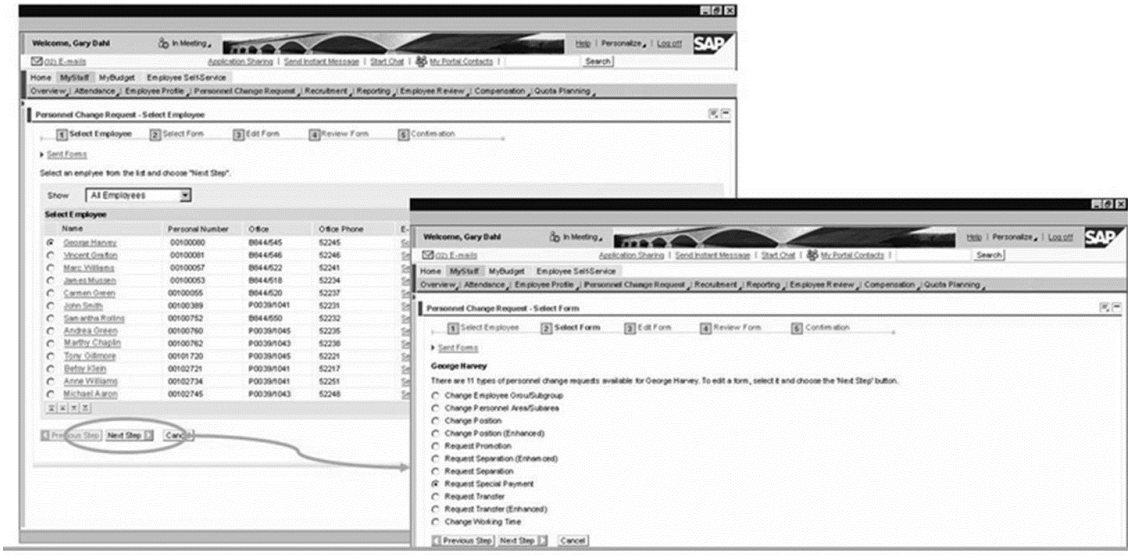


Figure 16: Application – Personnel Change Request

The roadmap in the top part of the personnel change request indicates the steps that the manager must follow to forward the request to the HR department for further processing. According to the roadmap, the manager must start by selecting an employee. A link in the context-sensitive area displays the requests already forwarded by the manager for that employee.

Personnel Change Request – Edit Form

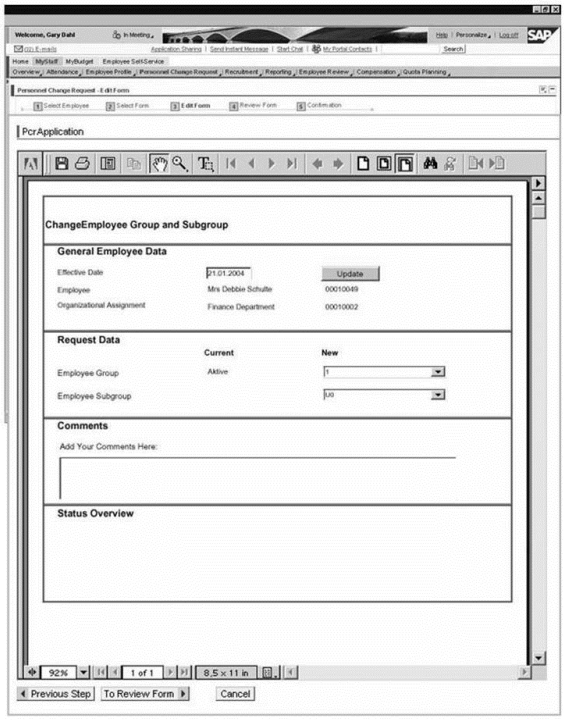


Figure 17: Personnel Change Request

The figure shows a form with employee data.

Employees' Change Request – Status Information

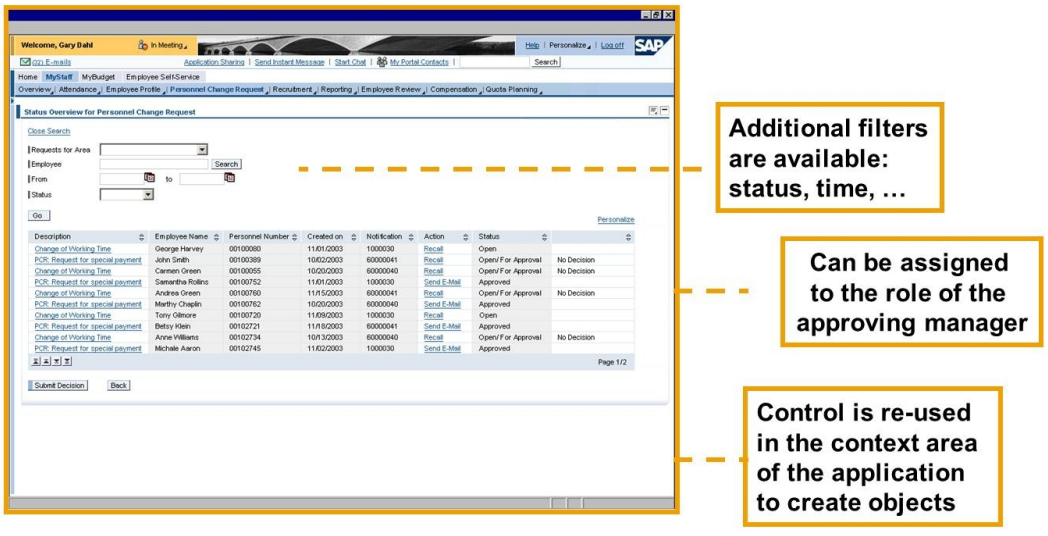


Figure 18: Employees' Change Request – Status Information

The Status Information page of the employees' change request displays additional filters such as status and time. An employee can be assigned to the role of the approving manager.

SAP Business Warehouse Queries in MSS

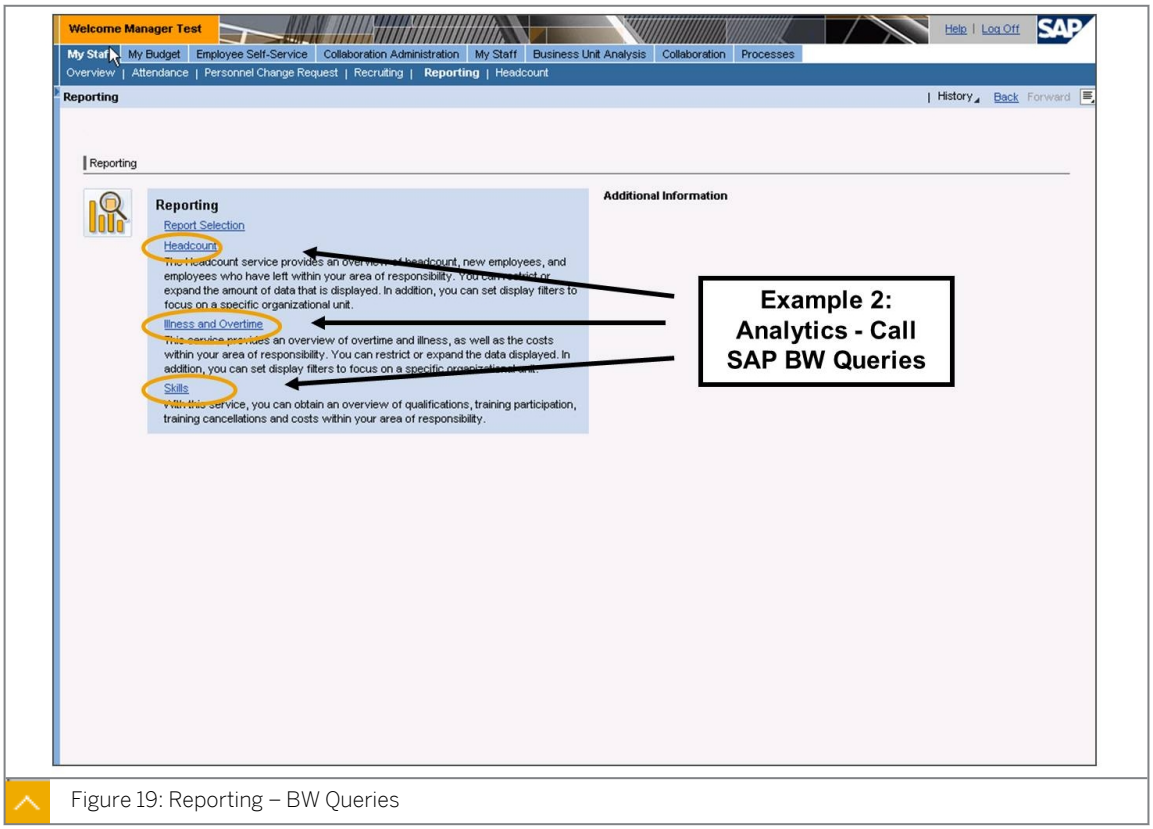


Figure 19: Reporting – BW Queries

On the BW Queries page, the manager selects a query from the list.

The standard system includes the following queries:

- Headcount
- Overtime and illness
- Personnel development

Query – Headcount Overview

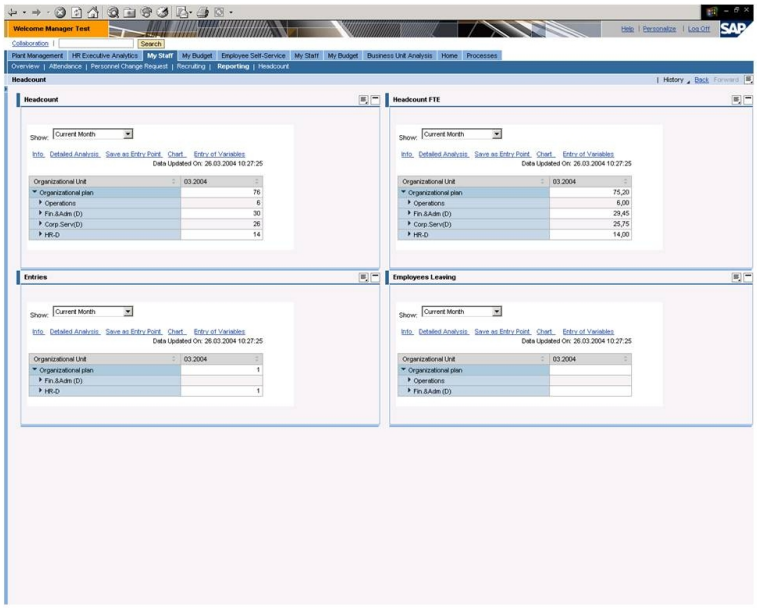


Figure 20: Reporting – BW Query Headcount

BW Query Headcount is supported by the BW cockpit and four BW reports.

The dropdown list at the top of the headcount query screen enables the manager to change the reporting period to the following time intervals:

- Current month
- Last four quarters
- Last twelve months

The results of each of the four reports are summarized in a graphic. To obtain more details, the manager can double-click the graphic. To access the detail view, choose Details.

BW Query – Overtime and Illness

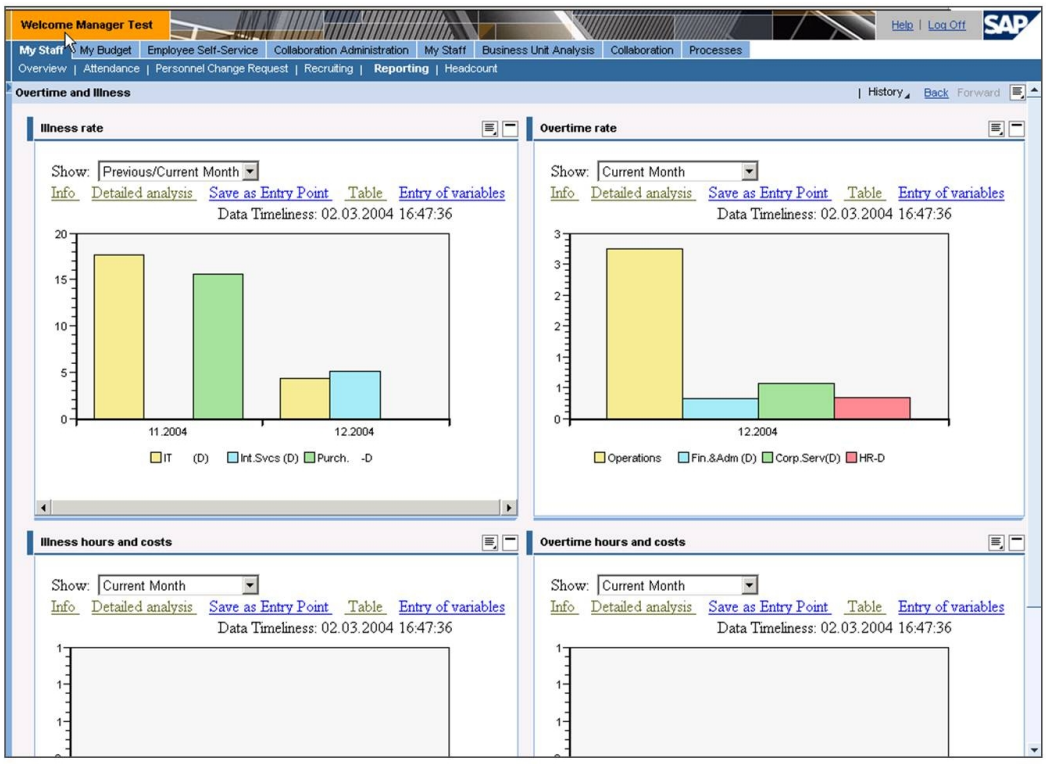


Figure 21: Reporting – BW Query Overtime and Illness

The dashboard provides the manager with an overview of overtime and illness for employees. Consequently, the manager can calculate the costs that have incurred.

The dashboard contains the following BW queries:

- Illness, which is the ratio of sick time to planned working time
- Overtime, which is the ratio of overtime to planned working time
- Costs incurred by illness
- Overtime and costs

Query – Qualifications

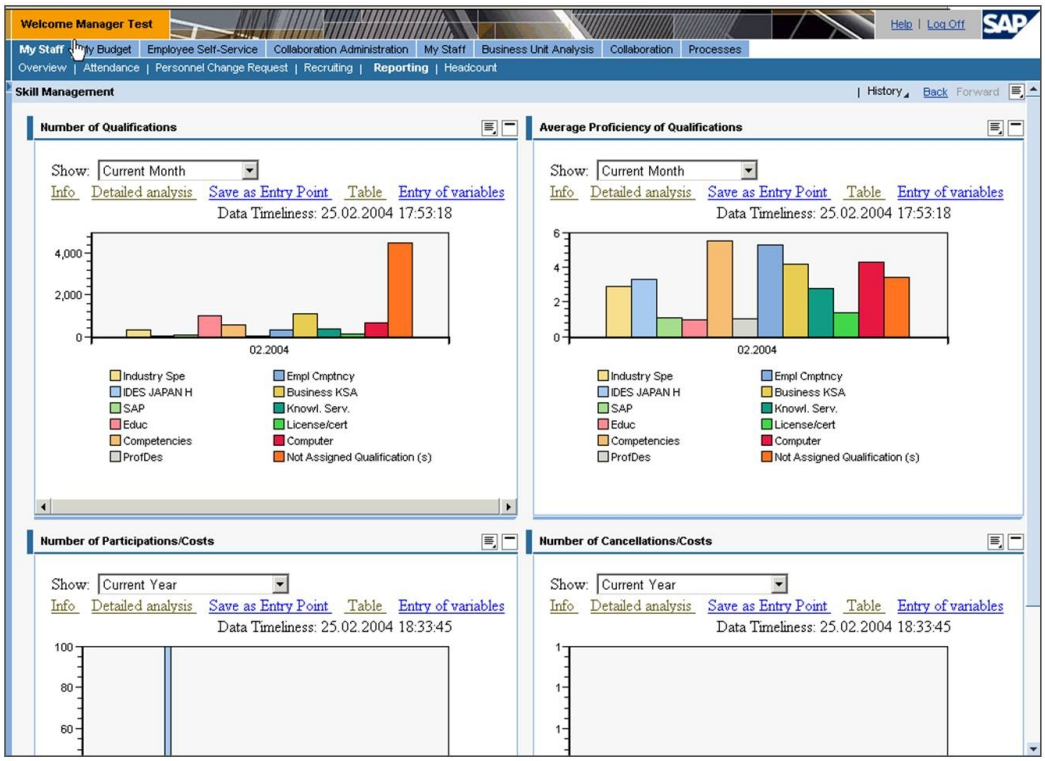


Figure 22: Reporting – BW Query Qualifications

The dashboard provides an overview of the skills and qualifications of the employees in a manager's area of responsibility.

The dashboard contains the following BW queries:

- Qualifications for active employees (filter according to employment status and employee group)
- Course participations and cancellations (and the costs incurred)

LESSON SUMMARY

You should now be able to:

- Outline the structure of MSS
- List the personnel change request documents available in MSS
- Outline the SAP Business Warehouse queries available in MSS

Unit 2
Lesson 2

Reporting on Employee Data Using SAP NetWeaver Business Client (NWBC)

LESSON OVERVIEW
This lesson outlines the functions of SAP NewWeaver Business Client

Business Example

As a manager, you are responsible for decision making related to your organizational unit and employees within your department. You are interested in the functions available with NWBC. For this reason, you require the following knowledge:

- An understanding of SAP NWBC

LESSON OBJECTIVES
After completing this lesson, you will be able to:

- Outline the functions of NWBC

SAP NetWeaver Business Client

Manager Self-Service consists of a set of easy-to-use tools, transactions, and reporting capabilities that gives managers a single point of access to manage their employees and budgets efficiently, effectively, and proactively. Key performance indicators, alerts, and analytical information empower managers to plan for the future and react to critical situations. The single point of access enables managers to access tools and reports that are intuitive to use. Reporting capabilities are based on various technologies.

Reporting technologies include the following reports:

- ABAP reports
- Query reporting
- BW Web reports
- Operational data provisioning

NWBC Harmonized Look and Feel

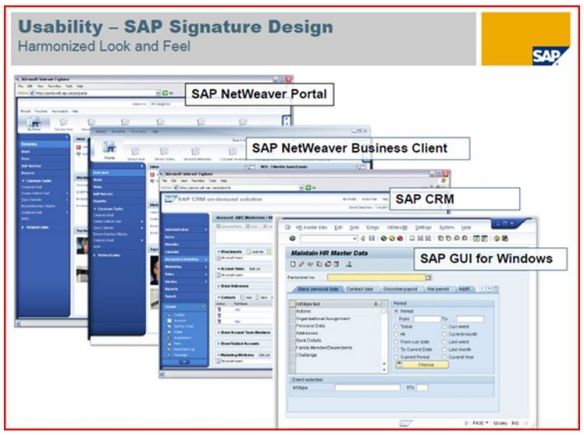


Figure 23: NWBC Harmonized Look and Feel

NWBC is a desktop client that offers a unified environment for, and a single point of entry to SAP applications, Web Dynpro applications, Business Server Pages (BSPs), portal pages, and other content. You can use NWBC with or without a portal, depending on whether you want to access ABAP back ends directly. NWBC runs on Windows XP and Windows Vista.

NWBC is an environment that hosts SAP GUIs to provide a unified environment with a more efficient, intuitive, and complete user experience. Within NWBC, you can move seamlessly between Web Dynpro and SAP GUI transactions. For the SAP GUI to run within NWBC, the SAP GUI must be installed as part of the NWBC installation or available separately.

NWBC supports generic desktop functions such as drag and drop and pop-up windows, by utilizing the corresponding application programming interfaces (APIs).

Canvas of NWBC

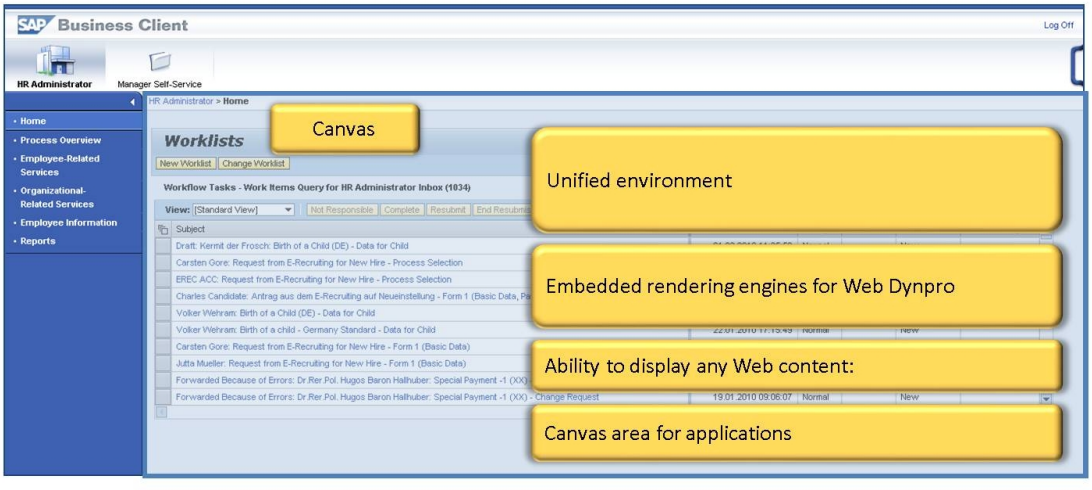


Figure 24: Canvas of NWBC

The canvas is the area that hosts the applications. It provides a unified environment with embedded rendering engines for different types of applications. All standard applications run in the canvas.

Some of the standard applications are as follows:

- Web Dynpro for ABAP
- Web Dynpro for Java
- SAP GUI applications
- SAP Business Warehouse reports
- Flex content
- PDF-based print form

NWBC Shell

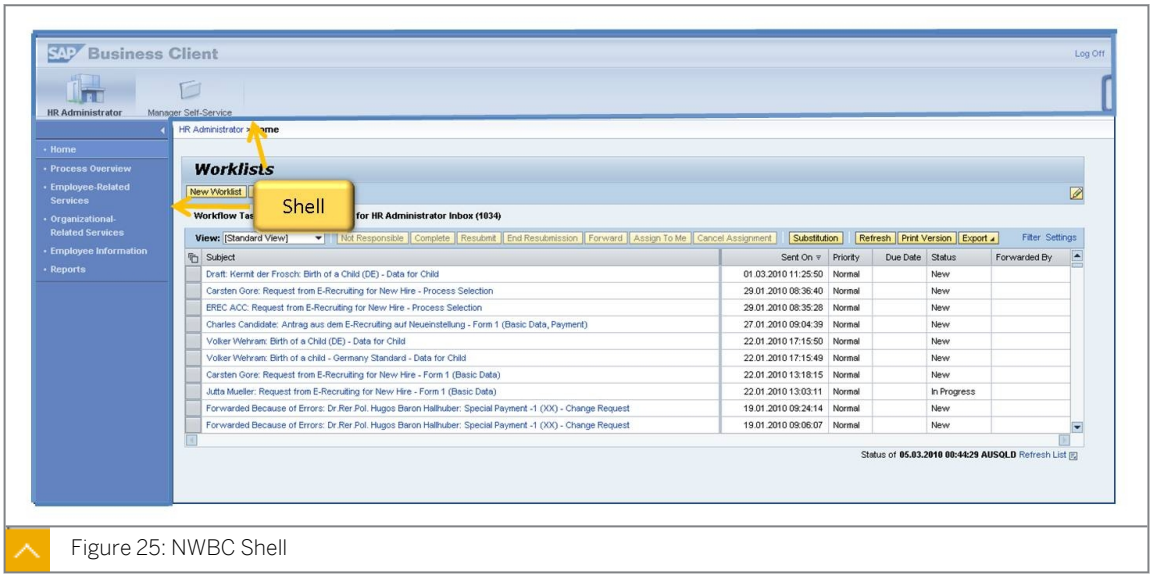


Figure 25: NWBC Shell

The shell is a frame that consists of the horizontal bar above and the vertical bar to the left of the canvas. It provides a wide range of functions such as role based navigation, search functions, help, desktop integration, menus, branding, scripting, and caching.

At the top of the screen is the menu bar where the extended functionality is placed, for example, a list of recently used transactions, or the ability to access online help from the menu. Search functions are also centrally available to enable you to find specific data quickly.

Human Capital Management (HCM) Role Content in NWBC and in the Portal

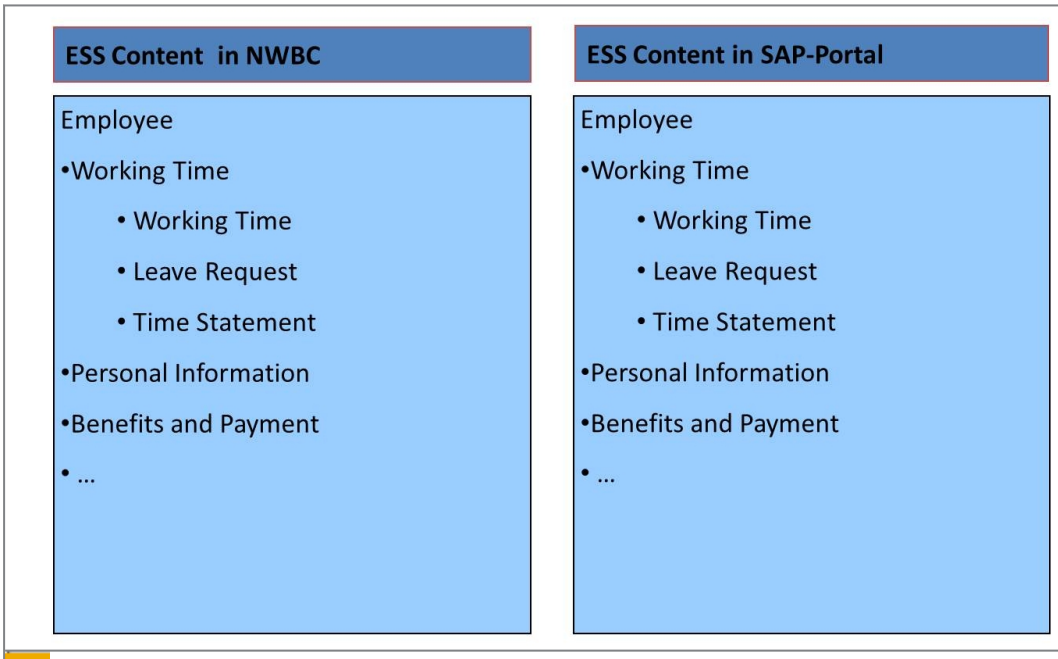


Figure 26: HCM Role Content in NWBC and in the Portal

Both NWBC and portal roles contain exactly the same content. The difference is the client the content is running in all NWBC roles based on Web Dynpro ABAP.

Manager Role

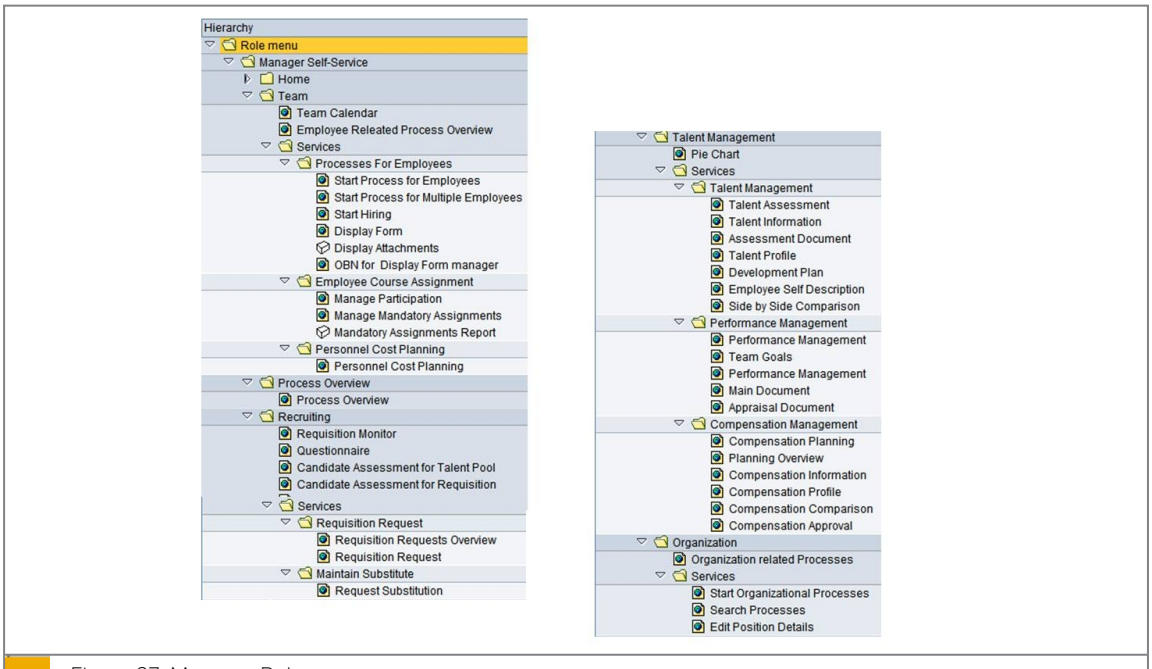


Figure 27: Manager Role

The manager role enables managers to generate various reports to use for decision making.

New content includes the following Web Dynpro ABAP content:

- Team Calendar

- Leave Approval
- Working Time Approval
- Personnel Cost Planning
- Compensation Planning and Approval
- Compensation Profile and Comparison
- Maintain Position Details

Note:
The NWBC role for MSS does not contain any Web Dynpro Java Services and includes the new Suite Inbox.

MSS and NWBC

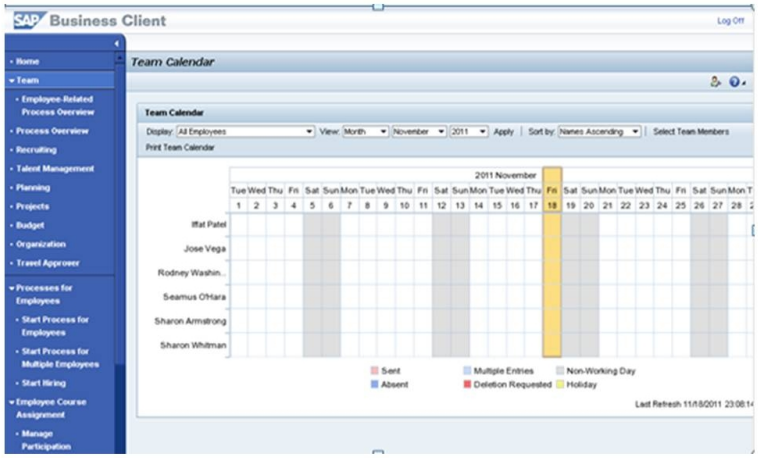


Figure 28: MSS and NWBC

Managers can view and start employee processes and run various reports from the NWBC screen.

NWBC Reports for Managers

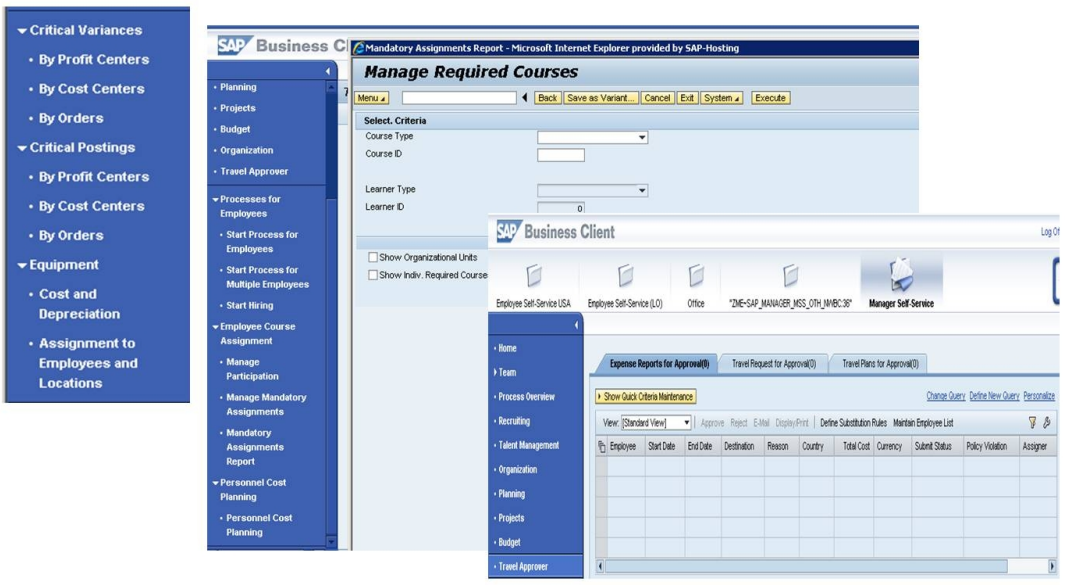


Figure 29: NWBC Reports for Managers

Reports are organized into groups in the vertical bar of the shell. Managers select the desired report, which is then executed in the canvas area of the screen.

One of the reports a manager is able to generate using NWBC allows the management of required courses.

Note:
SAP Notes:

- General NWBC information: Note 900000
- Release Restrictions: Note 1029940

You can find further information on NWBC under the following links:

http://www.sdn.sap.com/irj/wdb/nw-businessclient

http://help.sap.com/saphelp_nw70ehp2/help-data/en/31/8dd113b8ba4832aeaafb4b756e1eed/frameset.htm

LESSON SUMMARY

You should now be able to:

- Outline the functions of NWBC

Learning Assessment

1. The standard system for reporting BW queries includes queries based on:

   Choose the correct answer.

   - ☐ A Personnel development
   - ☐ B Organizational development

2. SAP NetWeaver Business Client requires an SAP Enterprise Portal.

   Determine whether this statement is true or false.

   - ☐ True
   - ☐ False

Learning Assessment - Answers

1. The standard system for reporting BW queries includes queries based on:

   Choose the correct answer.

   [X] A Personnel development

   [ ] B Organizational development

2. SAP NetWeaver Business Client requires an SAP Enterprise Portal.

   Determine whether this statement is true or false.

   [ ] True

   [X] False

UNIT 3 Standard SAP Reports

UNIT OBJECTIVES

- Locate standard reports using the ABAP Workbench
- Execute a standard delivered report
- Modify an existing user menu to include additional reports

Unit 3
Lesson 1

Executing Standard Reports

LESSON OVERVIEW
This lesson introduces standard reports and the method to execute them in the SAP system.

Business Example

You work in the Human Resources (HR) department of your company and you need reports about employees based on various criteria. For this reason you require the following knowledge:

- An understanding of ABAP Workbench reports
- An understanding of information system reports
- An understanding of how to execute a report from an information system

LESSON OBJECTIVES
After completing this lesson, you will be able to:

- Locate standard reports using the ABAP Workbench
- Execute a standard delivered report

ABAP Workbench Reports

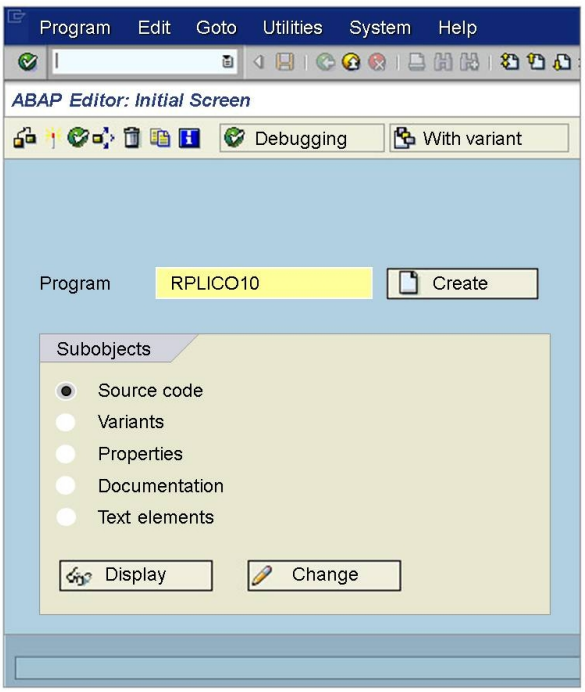


Figure 30: Standard Reporting Using the ABAP Workbench

You can execute SAP standard reports directly from the ABAP Editor. To execute SAP standard reports, you must have the appropriate authorization and you must know the technical name of the report.

To start the ABAP Editor, choose *SAP Menu → Tools → ABAP Workbench → Development → ABAP Editor.*

Alternatively, you can start a report by choosing *System → Services → Reporting.*

Naming Conventions Used for Grouping HR-Specific Reports

Examples of naming conventions used to group HR-specific reports together are listed in the following table:

Table 1: Programs

Program Abbreviation	Reports for
RP...	Personnel Administration (PA)
RH...	Organizational Management and Personnel Development (PD)
RPT...	Time Management
RPC...	Payroll
RPL...	List Reports in PA
RPB...	Statements
RPR...	Travel Expenses

Program Abbreviation	Reports for
RPAQ...	ABAP Query
RPAPL...	Recruitment

Information System Reports

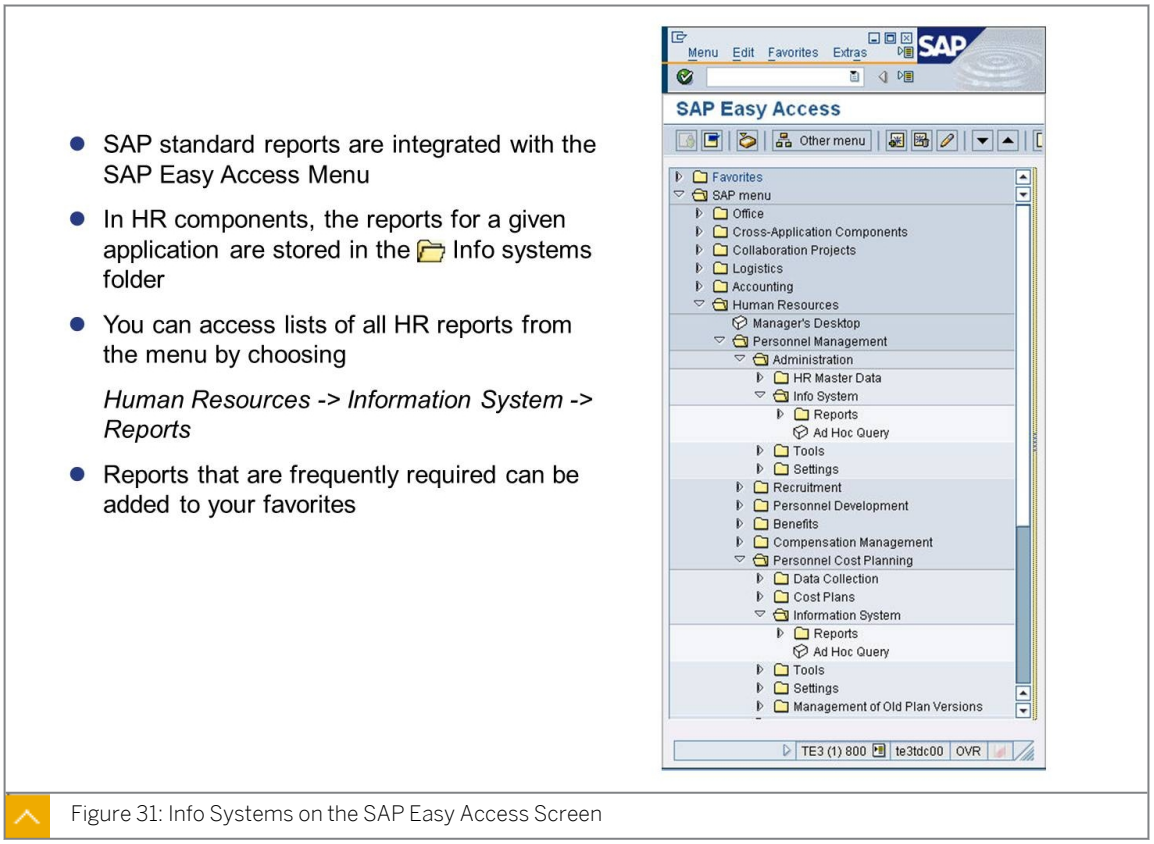


Figure 31: Info Systems on the SAP Easy Access Screen

SAP standard reports are integrated with the *SAP Easy Access* screen. These reports are called information system reports.

You can search for standard reports in individual applications or across applications. Application specific standard reports are available in the info systems of individual HR components. In HR components, the reports for a given application are stored in the info systems folder.

You can add reports that are frequently required to your favorites.

To access different information systems of individual HR components, choose the following paths:

- *Human Resources → <component> → <info system> → Reports*
- *Human Resources → Payroll → <continent> → <country> → Info System*
- *Human Resources → Time management → <component> → Info System*

The Human Resources Information System (HRIS) contains all HR-specific reports. Its structure corresponds to the HR components. Within the components, reports are grouped together by subject matter. To access the HRIS, choose the following path:

Human Resources → Information System → Reports

Reports on the SAP Easy Access Screen

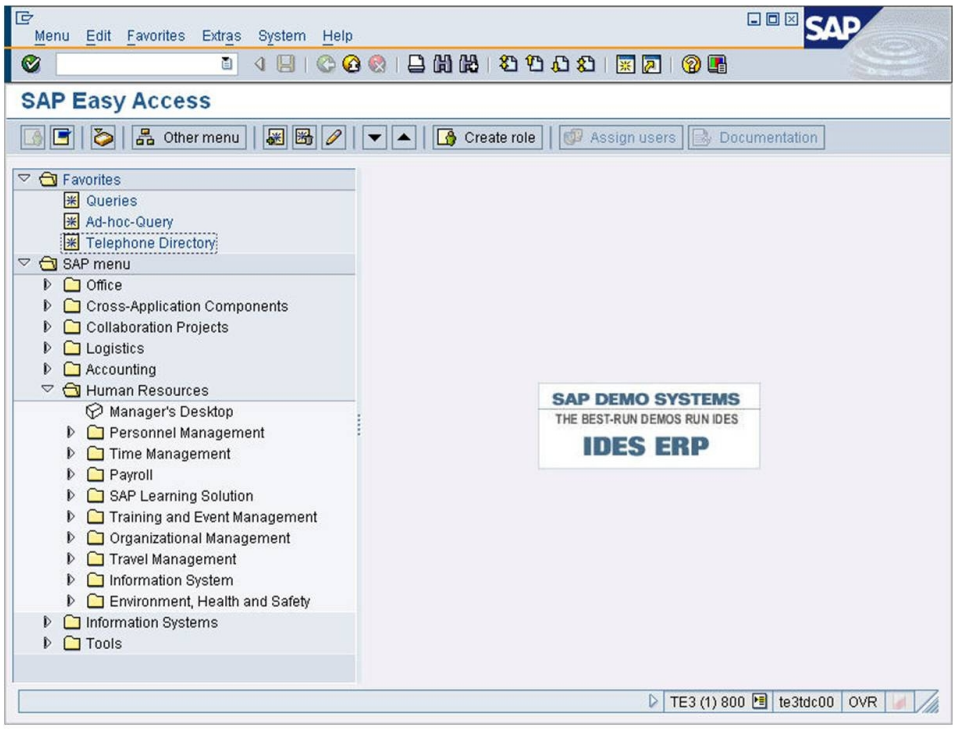


Figure 32: Reports on the SAP Easy Access Screen

You can insert reports directly into area menus. Each report without a transaction code is automatically assigned a new transaction code, which is then inserted into the menu.

To access area menus, on the SAP Easy Access screen, choose *Tools → ABAP Workbench → Development → Other Tools → Area Menus*.

If you do not want the system to generate a transaction code automatically, you must create it beforehand.

LESSON SUMMARY

You should now be able to:

- Locate standard reports using the ABAP Workbench
- Execute a standard delivered report

Unit 3
Lesson 2

Defining a User Menu

LESSON OVERVIEW
This lesson explains how to define a user menu in the SAP system.

Business Example

As the line manager of a department, you are responsible for reporting. To ensure employees are able to generate the required reports efficiently, you need to adjust user menus to include the reports. For this reason, you require the following knowledge:

- An understanding of user menus
- An understanding of how to modify a user menu

LESSON OBJECTIVES
After completing this lesson, you will be able to:

- Modify an existing user menu to include additional reports

User Menus

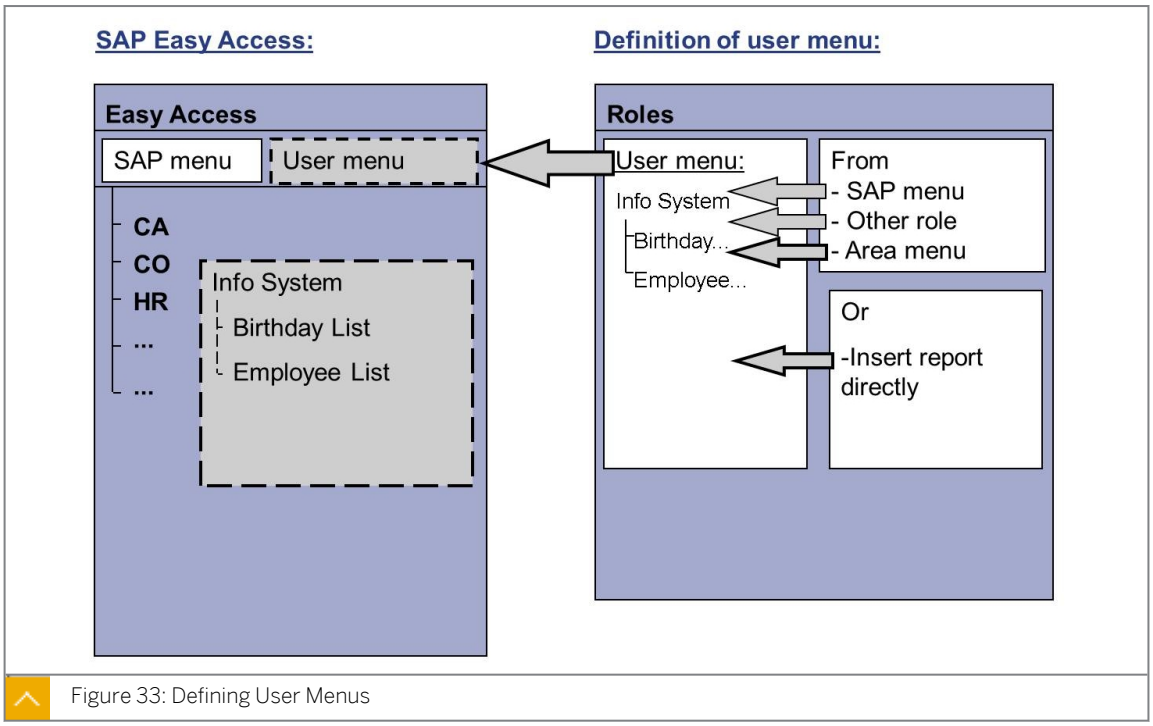


Figure 33: Defining User Menus

To integrate your own reports in a role, perform the following general role maintenance steps:

1. Integrate the reports directly in the role or by adjusting an area menu.

2. Generate profiles.
3. Assign users.

To access role maintenance on the *SAP Easy Access* screen, choose *Tools* → *Administration* → *User Maintenance* → *Role Administration* . → *Roles.*

LESSON SUMMARY

You should now be able to:

- Modify an existing user menu to include additional reports

Learning Assessment

1. SAP standard reports can be executed directly from the ABAP Editor, but it is important to know the technical name of the report.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

2. In HR components, the reports for an application are stored in the Info Systems folder.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

3. You can insert all types of reports that were previously included in report trees directly into area menus.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

4. Each report without a transaction code is automatically assigned a new transaction code, which is then inserted into the area menu.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

Learning Assessment - Answers

1. SAP standard reports can be executed directly from the ABAP Editor, but it is important to know the technical name of the report.

   Determine whether this statement is true or false.

   [X] True

   [ ] False

2. In HR components, the reports for an application are stored in the Info Systems folder.

   Determine whether this statement is true or false.

   [X] True

   [ ] False

3. You can insert all types of reports that were previously included in report trees directly into area menus.

   Determine whether this statement is true or false.

   [X] True

   [ ] False

4. Each report without a transaction code is automatically assigned a new transaction code, which is then inserted into the area menu.

   Determine whether this statement is true or false.

   [X] True

   [ ] False

UNIT 4 Logical Databases and Infosets

UNIT OBJECTIVES

- Outline the concepts of the PNP, PNPCE, PCH, and PAP logical databases
- Outline the purpose of InfoSets
- Modify a user group
- Transport an InfoSet from the global area (cross-client) to the standard area (client-specific)
- Create a new InfoSet to include the information required for reporting
- Outline InfoSet switches processed by the Query Generator

Unit 4
Lesson 1

Outlining Logical Databases

LESSON OVERVIEW
This lesson explains the importance and concepts of logical databases in Human Capital Management (HCM) reporting.

Business Example

Your management requires various reports that are not available as standard reports. You need to generate these reports in the form of queries by using logical databases. For this reason, you require the following knowledge:

- An understanding of the importance of logical databases
- An understanding of the functions of logical databases

LESSON OBJECTIVES
After completing this lesson, you will be able to:

- Outline the concepts of the PNP, PNPCE, PCH, and PAP logical databases

Logical Databases: Functions

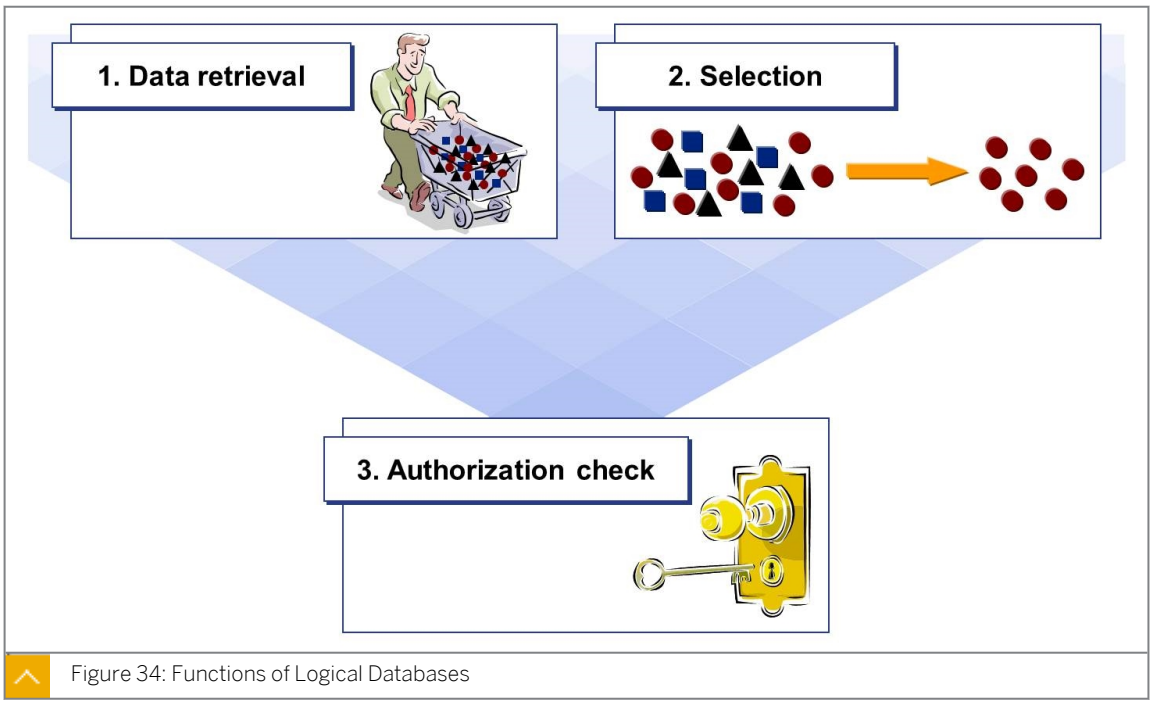


Figure 34: Functions of Logical Databases

Logical databases are special ABAP programs that retrieve data and make it available for processing to application programs and queries. These databases provide a specific view of the database tables in the SAP system.

Logical databases can perform the following tasks:

- Data retrieval

  In data retrieval, personal data for each employee is loaded into the main memory, where it is available for processing.

- Selection

  On a selection screen, you can select employees according to organizational criteria; for example, you can retrieve data for all hourly wage earners in a particular part of the enterprise.

- Authorization check

  In authorization check, the system checks whether the user starting a report is authorized to view the data in the report.

Performance improvements in logical databases are passed on to all related programs and queries, without them needing to be changed themselves.

Logical Databases

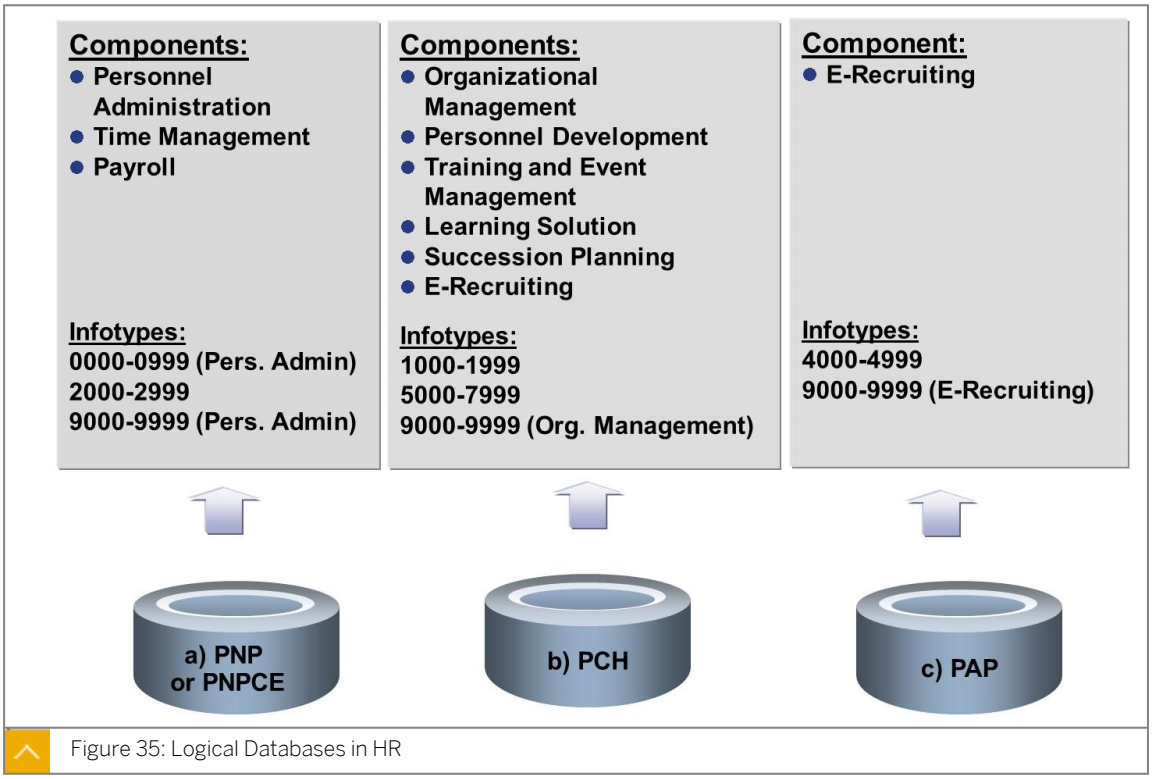


Figure 35: Logical Databases in HR

The system includes the following logical databases that enable you to create InfoSets for HR:

1. PNPCE (will replace PNP)
2. PCH
3. PAP

The logical database you need to use when creating an InfoSet is determined by the HR components on which you need to report.

Table 2: The following table lists the assignments between components and logical databases:

Component	Logical Database
HR Administration	PNP or PNPCE
Time Management	PNP or PNPCE
Payroll	PNP or PNPCE
Recruitment	PAP
Personnel Development	PCH
Organizational Management	PCH
Training and Event Management	PCH
E-Recruiting	PCH
Learning Solution/Enterprise Learning	PCH
Succession Planning	PCH

Logical Database PNPCE

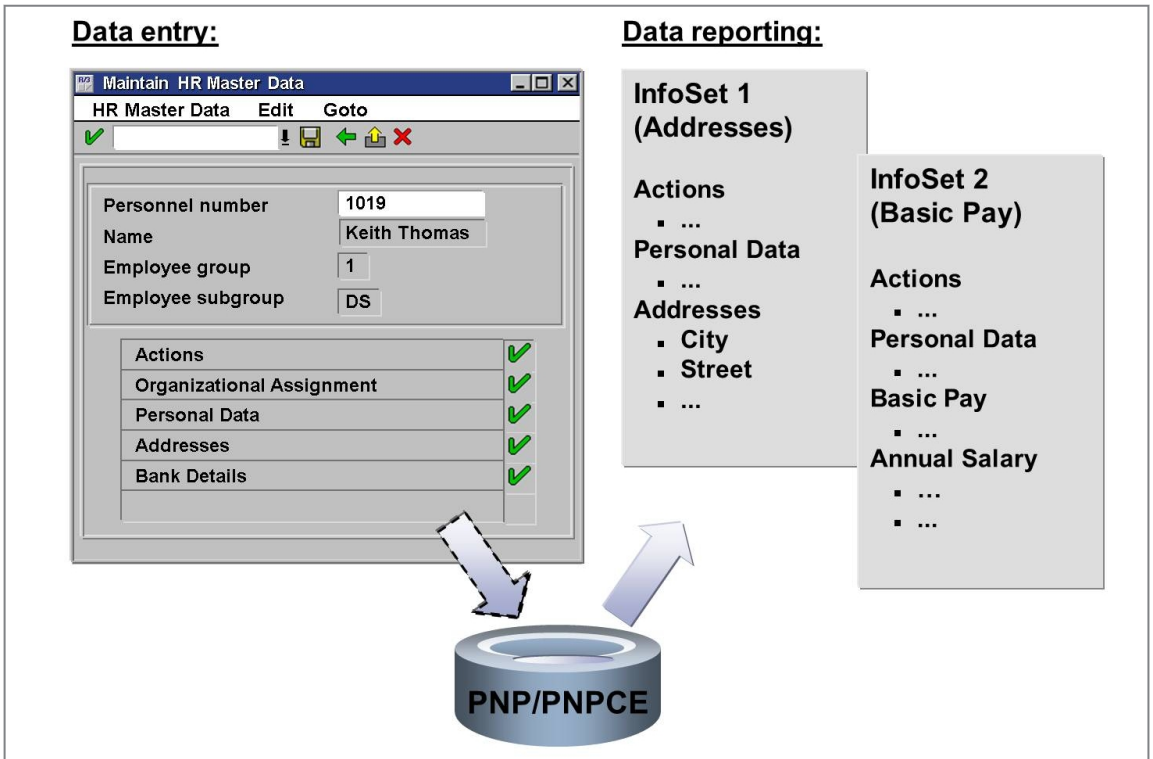


Figure 36: Logical Database PNPCE

The logical database PNPCE is intended to replace the logical database PNP. To report data from Personnel Administration, Payroll, or Time Management, you should use the PNPCE logical database to create InfoSets.

The PNPCE logical database offers the following features:

- PNPCE can be used with concurrent employment. For more information about concurrent employment, see SAP Note 517071.
- PNPCE contains the following enhancements and new features:
  - Customizable list box for setting the reporting period that is intuitive and easy to use
  - Simplification of individual specification of person and data selection periods
  - Integration of reporting period and payroll period on one screen (no screen change required)
  - Clearly structured selection screen with all pushbuttons in the general application toolbar
  - Clearly structured in place display of dynamic selection options (optionally as a dialog box, as with PNP)
  - Support for selection IDs while selecting personnel numbers

The enhancements can be used independently of the concurrent employment concept. SAP recommends that you use PNPCE for all new developments.

In older releases, you can import the Query Generator with the help of SAP Notes and Support Packages (4.6C: SAP Note 305118; 4.6B: SAP Note 187767; 4.5B: SAP Note 153684).

Note:
The logical database PNP will continue to be supported.

Personnel Administration and Recruitment Data Model

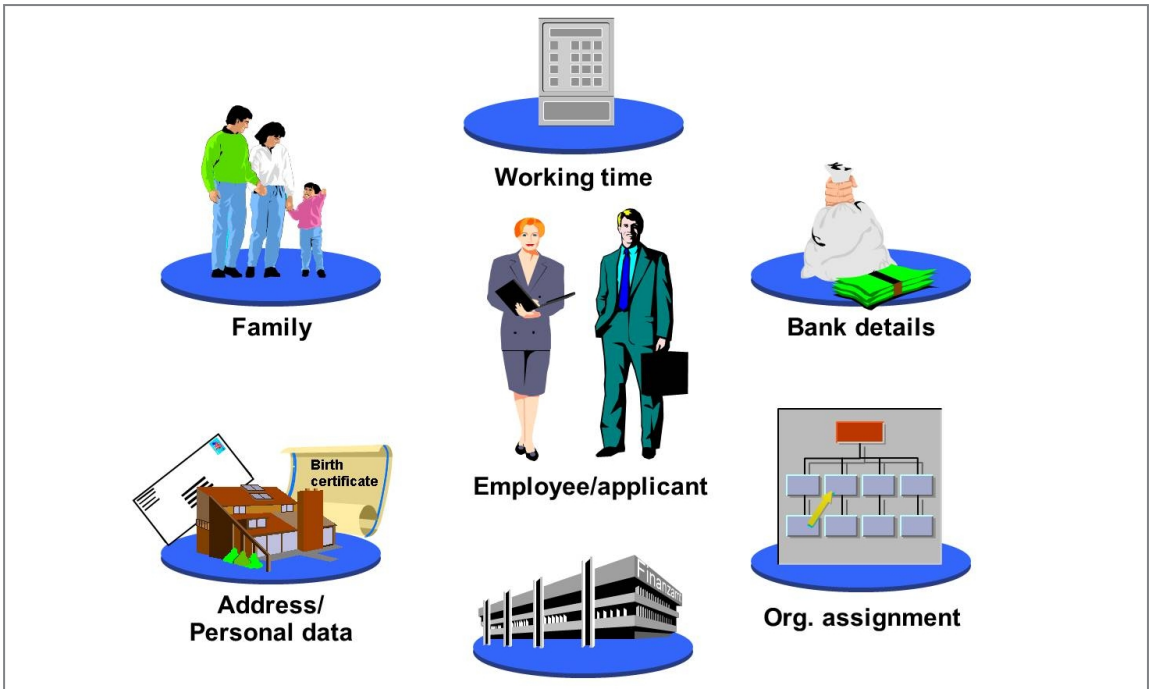


Figure 37: Data Model Personnel Administration and Recruitment

Infotypes are units of information in HR. Infotypes group together coherent data fields.

Infotypes are ways of structuring information that is reported on by reports or queries. To preserve the history of infotypes, the system saves them in time-specific records. The system records a validity period for each infotype record. Usually, there are several data records for each of an employee's infotypes. The records are distinguished by their differing validity periods.

Using the following time constraints, you specify how the data records of an infotype react to each other over time:

- Time constraint 1

  For the time an employee belongs to the enterprise, there must be exactly one valid data record of a particular infotype.

- Time constraint 2

  At any particular point in time, there can be at most one valid data record of a particular infotype.

- Time constraint 3

  At any particular point in time, there can be unlimited valid data records of a particular infotype.

For a personnel number to exist, the *Actions* (*0000*), *Organizational Assignment* (*0001*), *Personal Data* (*0002*), and *Payroll Status* (*0003*) infotypes must exist. For an applicant number to exist, the Actions (4000), Organizational Assignment (4001), Personal Data (4002), and Payroll Status (4003) infotypes must exist.

Logical Database PCH

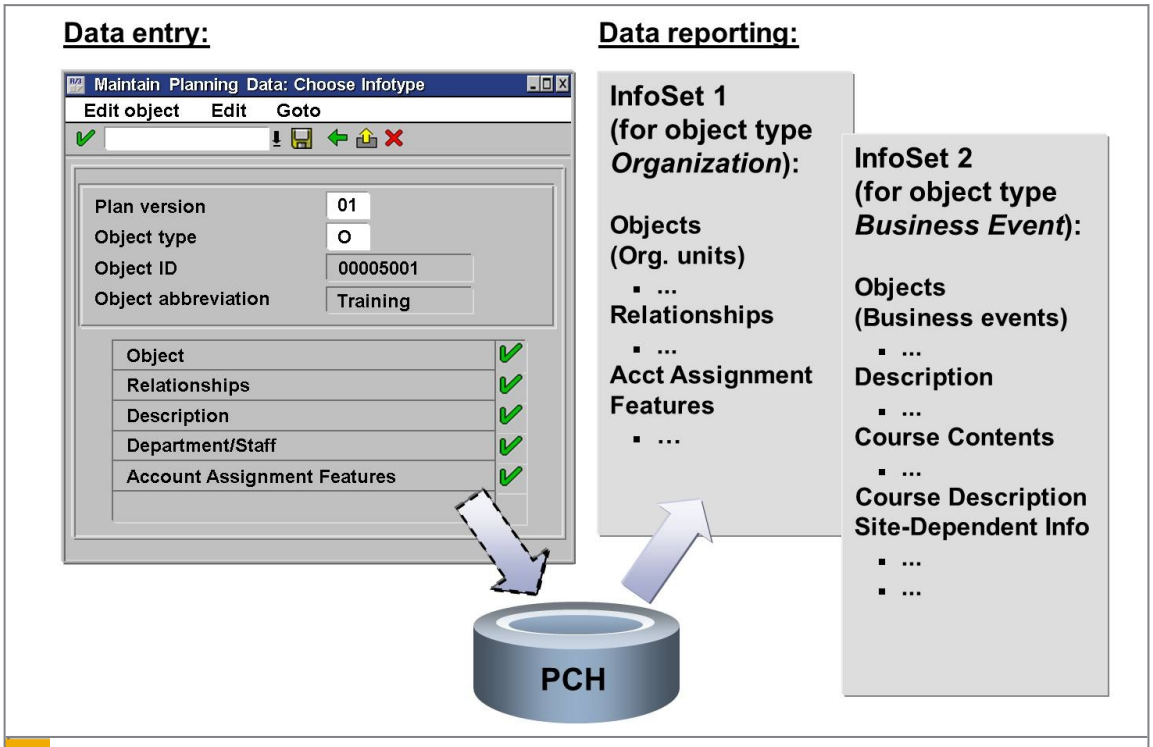


Figure 38: Logical Database PCH

You use logical database PCH if you want to report on data from the following components:

- Organizational Management
- Personnel Cost Planning
- Training and Event Management
- Personnel Development
- E-Recruiting
- Learning Solution/Enterprise Learning
- Succession Planning

If you create InfoSets using logical database PCH, you can restrict the InfoSet using an object type.

The InfoSet can only be used for Ad Hoc Query if it has been restricted using an object type. In this instance, the system only allows you to select infotypes that are relevant to the selected object type.

If you do not restrict the InfoSet using an object type, the system allows you to select all of the infotypes available in logical database PCH.

Personnel Planning Data Model

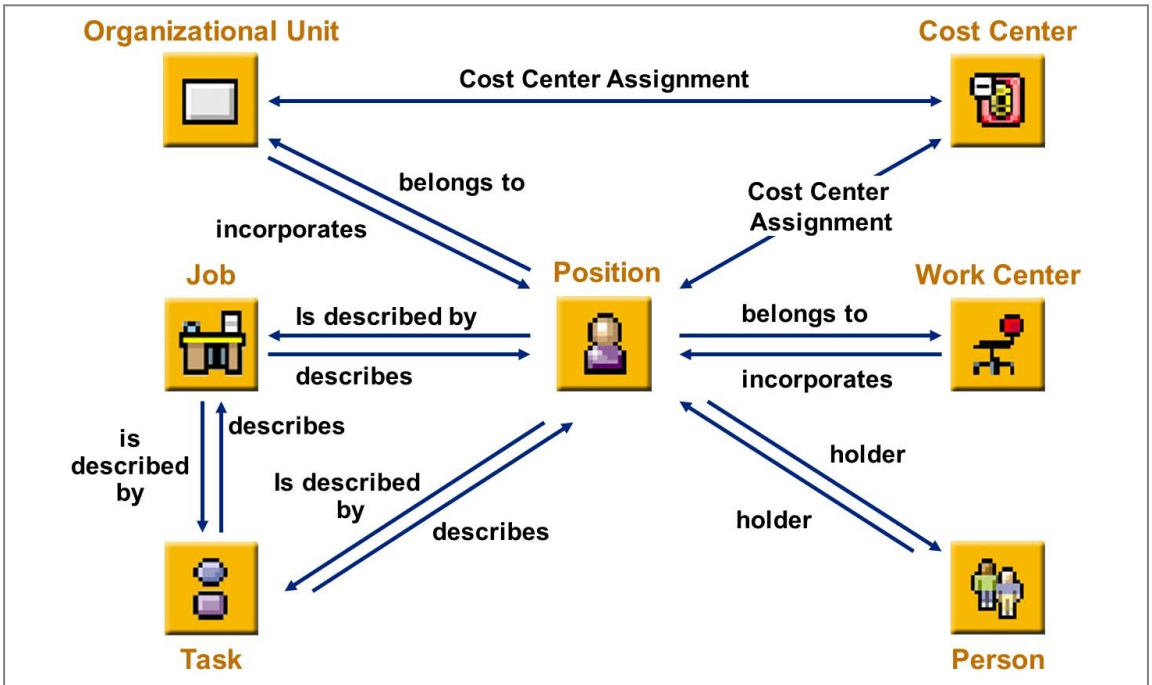


Figure 39: Data Model for Personnel Planning

Organizational Management is based on the concept that each element in an organization is depicted as an independent object with individual characteristics. These objects are created and maintained individually, and then connected to each other using relationships, as shown in the figure. This creates a flexible network that enables you to carry out personnel planning, previews, and reports.

Because cost centers are not maintained in Organizational Management, they are an external object type.

For example, in Customizing you can enhance the existing data model by defining new object types and allowing new relationships between object types.

Each standard object type name consists of one or two letters. The customer namespace is 00 to 99.

This data model (object types and relationships) is also the foundation for other personnel planning applications, such as Training and Event Management (business event hierarchies) and Personnel Development (qualifications catalog).

Reporting on Data from PNP or PNPCE and PCH

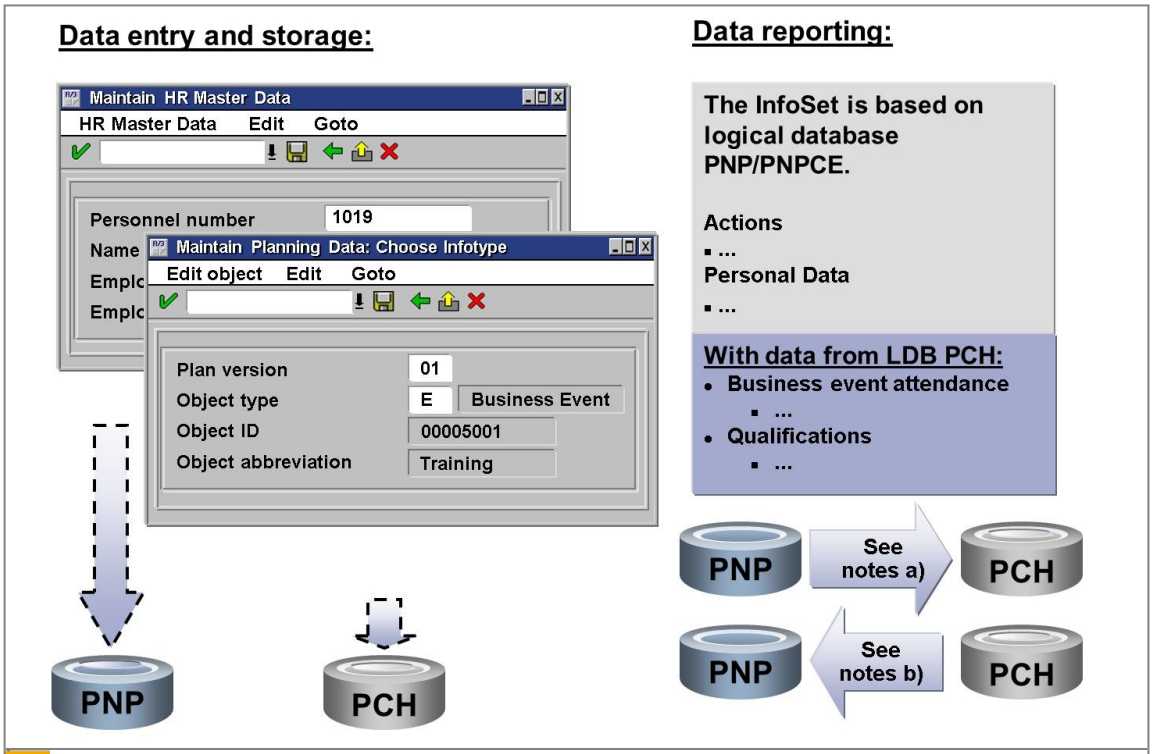


Figure 40: Reporting on Data from PNP or PNPCE and PCH

An InfoSet can be based on only one logical database. Therefore, you can select only one logical database to create an InfoSet.

In each of the following situations, which can arise for logical databases PNP and PCH, you need to decide which logical database to use to create a corresponding InfoSet:

- You want to output data from infotypes *0000-0999* and data from some infotypes from the PCH database, such as *Personnel Development* or *Training and Event Management* infotypes.

In this case, you must work with logical database PNP or PNPCE. If you create an InfoSet using PNP or PNPCE, you can include infotypes from PCH in the InfoSet.

- You want to report on all HR master data infotypes.

In this case, you must work with the logical database PCH. When you create the InfoSet, do not select an object type (in which case you can only work with SAP Query), or select the object type P (Person) or S (position).

Logical Database PAP

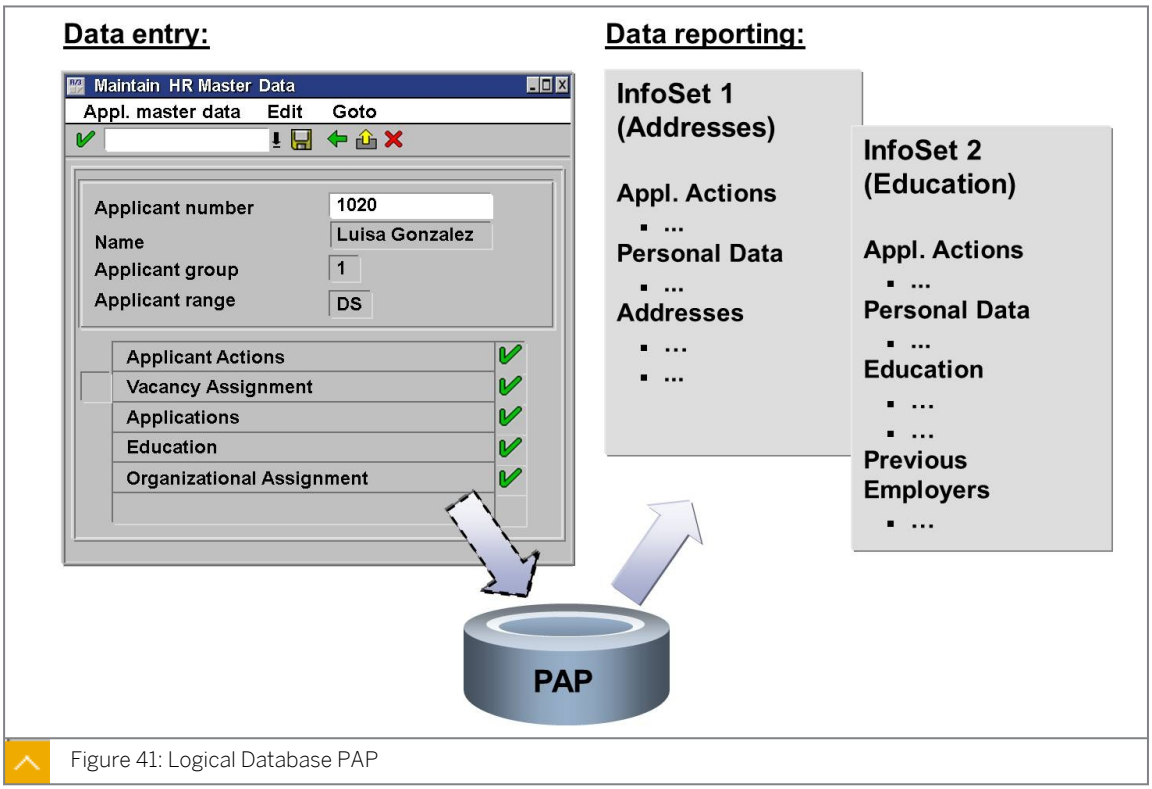


Figure 41: Logical Database PAP

To report data from the Recruitment component, select the logical database PAP to create InfoSets. The system then automatically provides you with a selection of relevant infotypes.

LESSON SUMMARY

You should now be able to:

- Outline the concepts of the PNP, PNPCE, PCH, and PAP logical databases

Unit 4
Lesson 2

Setting Up Reporting Elements

LESSON OVERVIEW
This lesson explains the concepts of user groups and infosets.

Business Example

As the HR Administrator, you are responsible for the setup and maintenance of user groups and infosets. For this reason, you require the following knowledge:

- An understanding of user groups
- An understanding of infosets

LESSON OBJECTIVES
After completing this lesson, you will be able to:

- Outline the purpose of InfoSets
- Modify a user group
- Transport an InfoSet from the global area (cross-client) to the standard area (client-specific)

InfoSet Basics

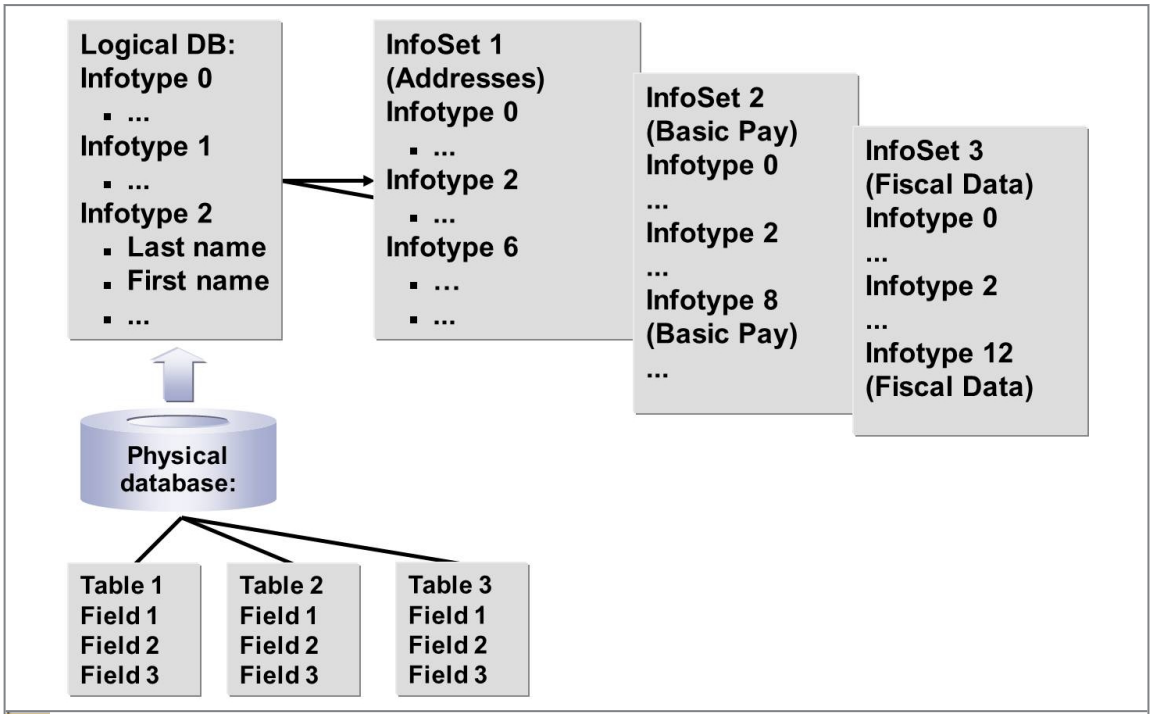


Figure 42: Logical Databases and InfoSets

InfoSets are special views of logical databases, which determine the fields of the logical database that can be reported by queries.

Because the system contains a large number of fields in logical databases, it is not practical to offer all of them for selection when creating queries. Therefore, before creating queries, you need to create InfoSets.

Each logical database has a standard selection screen that is determined by the structure of the logical database. Irrespective of the structure of the database tables used, the selection screen contains the selection parameters that are most frequently used. When you define reports with logical databases, you seldom need to select selection fields explicitly, because they are already included in the standard selection screen.

Another method of acquiring an overview of the selection parameters of a logical database consists of defining and executing a query on the logical database. All of the selection parameters are included in the selection screen. If many parameters are available, you can display them by choosing *Further Selections* .

Customer infotypes (*namespace 9000-9999*) can be included in InfoSets created for HR components.

InfoSets are assigned to user groups and are structured according to their field groups. Field groups in HR correspond to infotypes.

InfoSets and User Groups

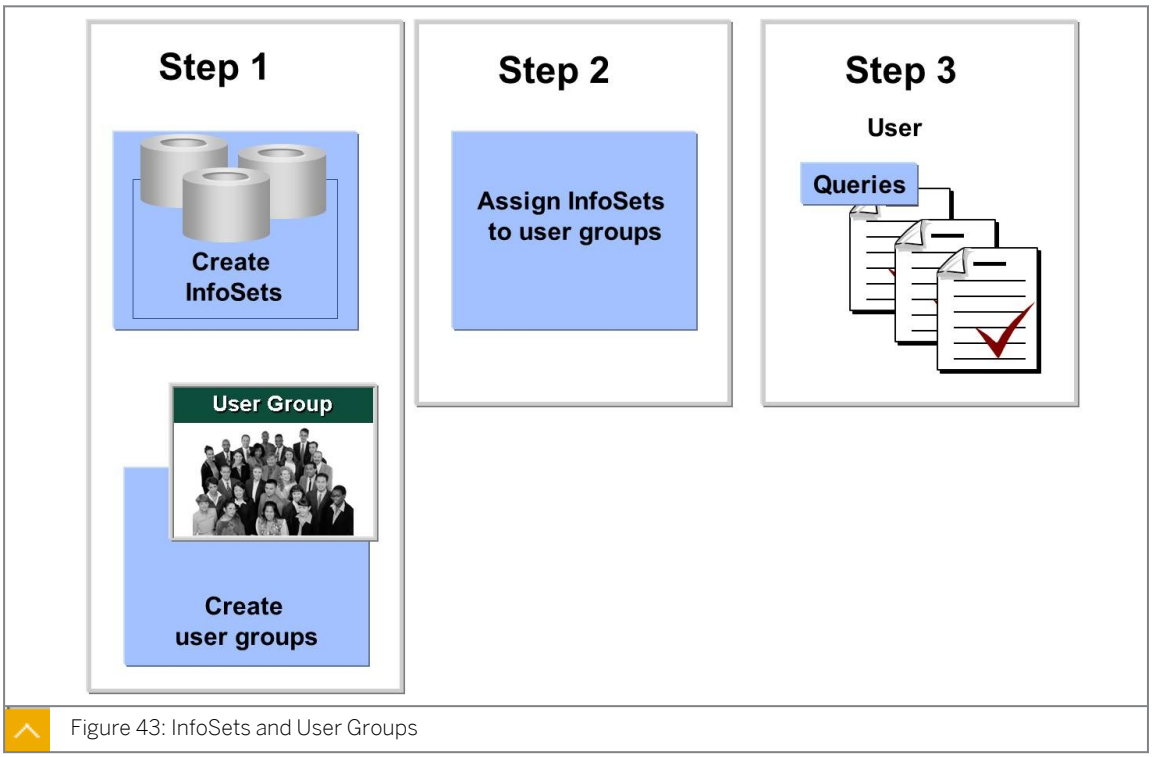


Figure 43: InfoSets and User Groups

InfoSets are only available to users if the users have been assigned to user groups.

The prerequisites for working with Ad Hoc Query and SAP Query are as follows:

1. You have created InfoSets and user groups.
2. You have assigned InfoSets to user groups.
3. Users can now create queries.

User Groups

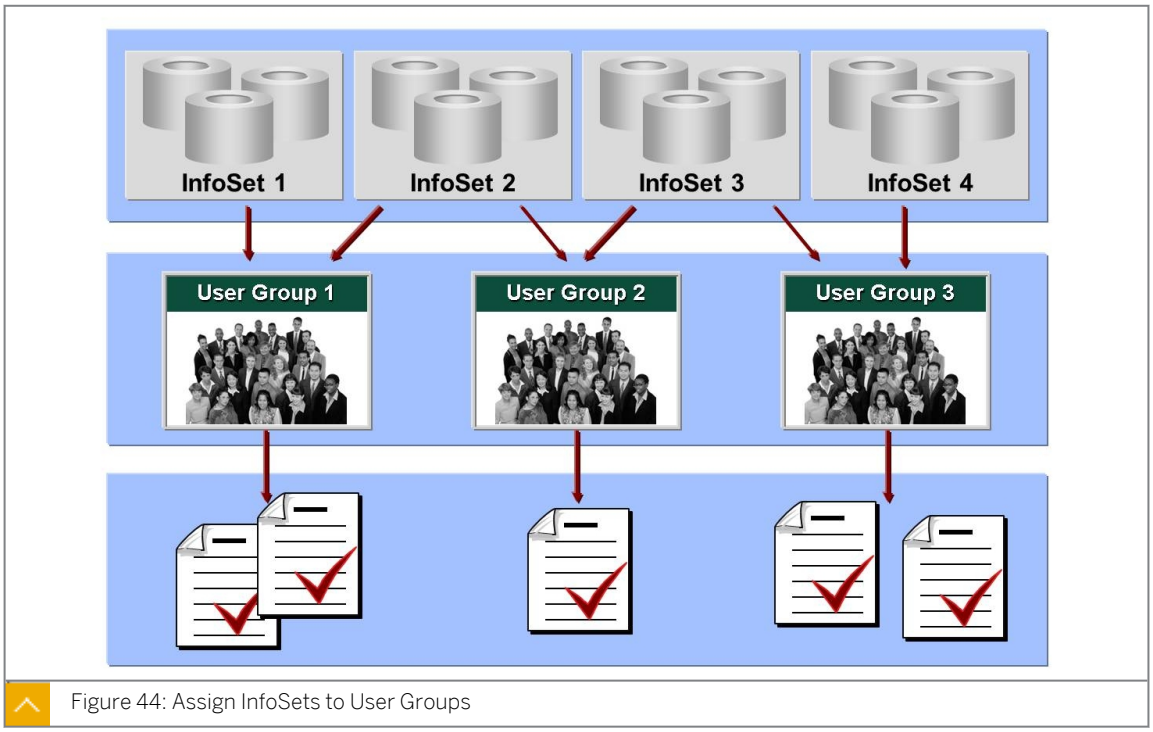


Figure 44: Assign InfoSets to User Groups

To set up an appropriate working environment for end users, the system administrator maintains user groups. Users who work in the same application are grouped together in user groups.

All users assigned to a user group can execute the queries of that group, irrespective of which user defined the query. However, users assigned to a user group can only change and redefine queries if they have the appropriate authorization.

Users can copy and execute queries in any of the user groups to which they belong. Whether or not they can change existing queries of those user groups depends upon whether or not the change lock has been implemented. Each user can be assigned to more than one user group.

Query Areas

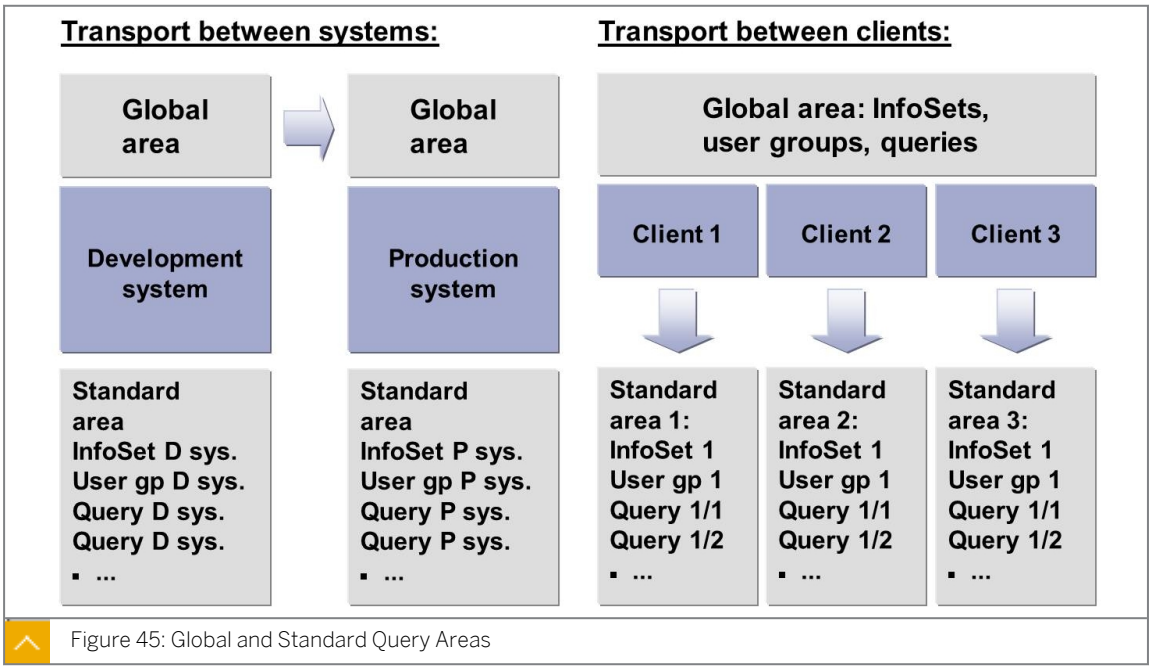


Figure 45: Global and Standard Query Areas

Query areas are of two types: standard and global.

In the standard query area, all query objects, such as queries, InfoSets, and user groups, are created and managed per client. The query objects are not linked to the Workbench Organizer. Therefore, they cannot be entered and transported using the normal correction and transport procedures. This enables end users to develop queries in their clients that are not intended for system-wide use.

In the global query area, query objects are *cross-client*. They are linked to the Workbench Organizer and can be entered and transported using the normal correction and transport procedures. However, you are not required to run any activity before or after transports. Therefore, the global query area is suitable for queries that are developed and distributed as centrally usable objects.

Note:
Query objects that are delivered by SAP as of release 4.0 are also stored in the global query area.

InfoSet Transports

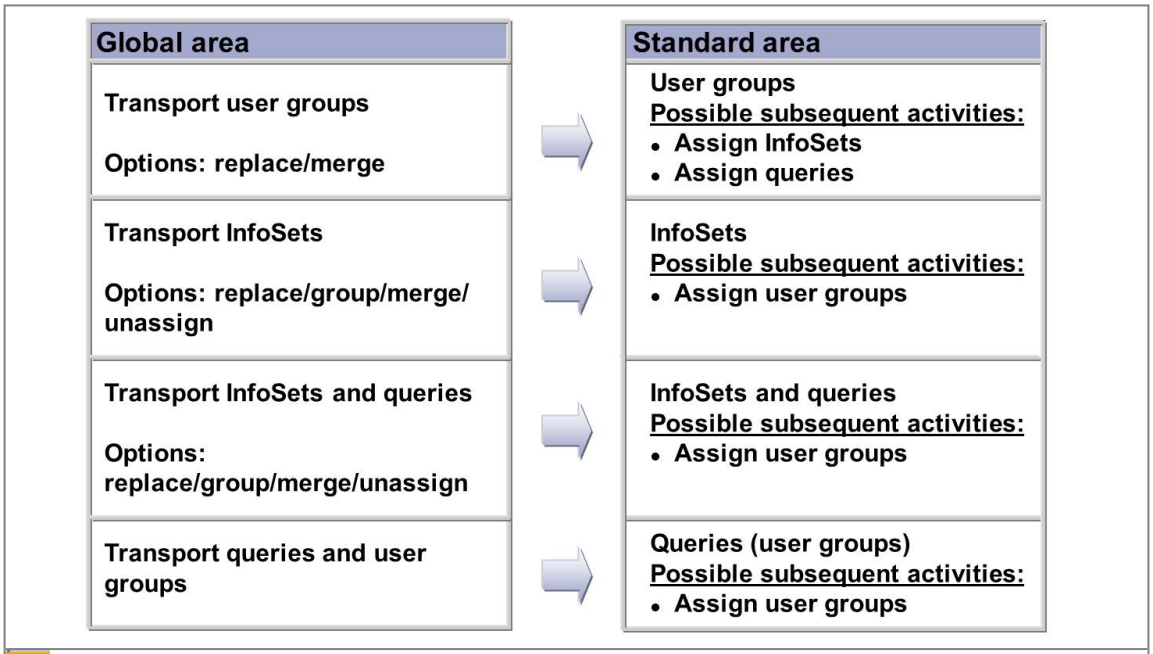


Figure 46: Transports from the Global Area (Cross-Client)

The transactions used to maintain query objects check the name syntax. You are allowed to use only name prefixes for query objects in the global query area. SAP Query objects can be imported into the global area (cross-client) when the system is upgraded. These objects provided by SAP use the reserved name prefix /SAPQUERY/.

If you create queries in a user group whose prefix belongs to SAP, a partner, or another customer, the queries inherit the prefix of their user group. Such user groups could end up in the system after a release upgrade or transport. The query then constitutes part of the objects assigned to the namespace specified by the prefix of the user group.

LESSON SUMMARY

You should now be able to:

- Outline the purpose of InfoSets
- Modify a user group
- Transport an InfoSet from the global area (cross-client) to the standard area (client-specific)

Unit 4
Lesson 3

Creating InfoSets

LESSON OVERVIEW

This lesson explains how to create and change InfoSets.

Business Example

You need to create InfoSets to include the information required for reporting. For this reason, you require the following knowledge:

- An understanding of the InfoSet maintenance screen
- An understanding of the maintenance interface

LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Create a new InfoSet to include the information required for reporting

InfoSet Maintenance Screens

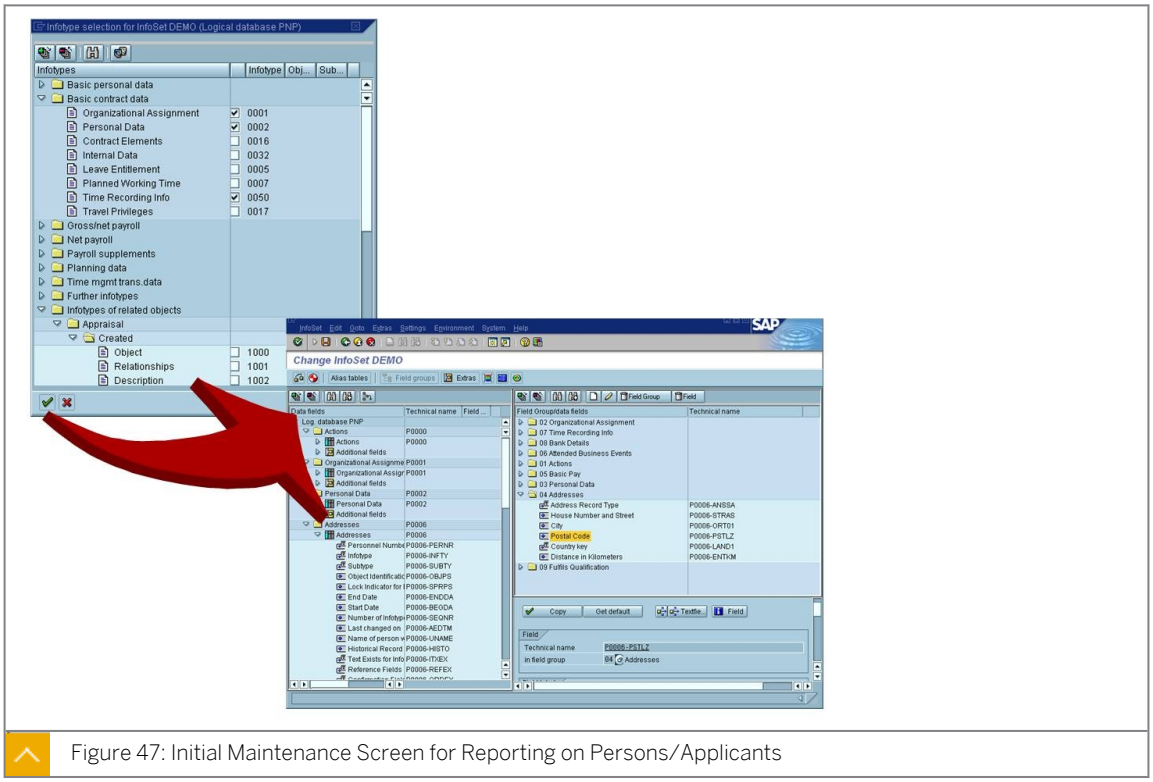


Figure 47: Initial Maintenance Screen for Reporting on Persons/Applicants

The maintenance interface for an InfoSet is set up as follows:

- You select infotypes for an InfoSet using the checkboxes in a tree control.

- If you create an InfoSet using HR master data, such as the logical database PNPCE or PNP, the HR infotypes are grouped according to the selected user group. You can set the user group through the *Change User Group View* function. In the *infotypes of related objects* group, use allowed relationships to select the objects from personnel planning and related infotypes.
- You can define the sequence of field groups within an InfoSet and the sequence of fields in a field group. You can rename field groups and fields. The InfoSet is displayed in the InfoSet Query according to the settings that were made when it was created.
- You can add additional infotypes or delete existing ones. You can only delete an infotype if none of its fields are used in a query.

Initial Maintenance Screen for Reporting on Personnel Planning Objects

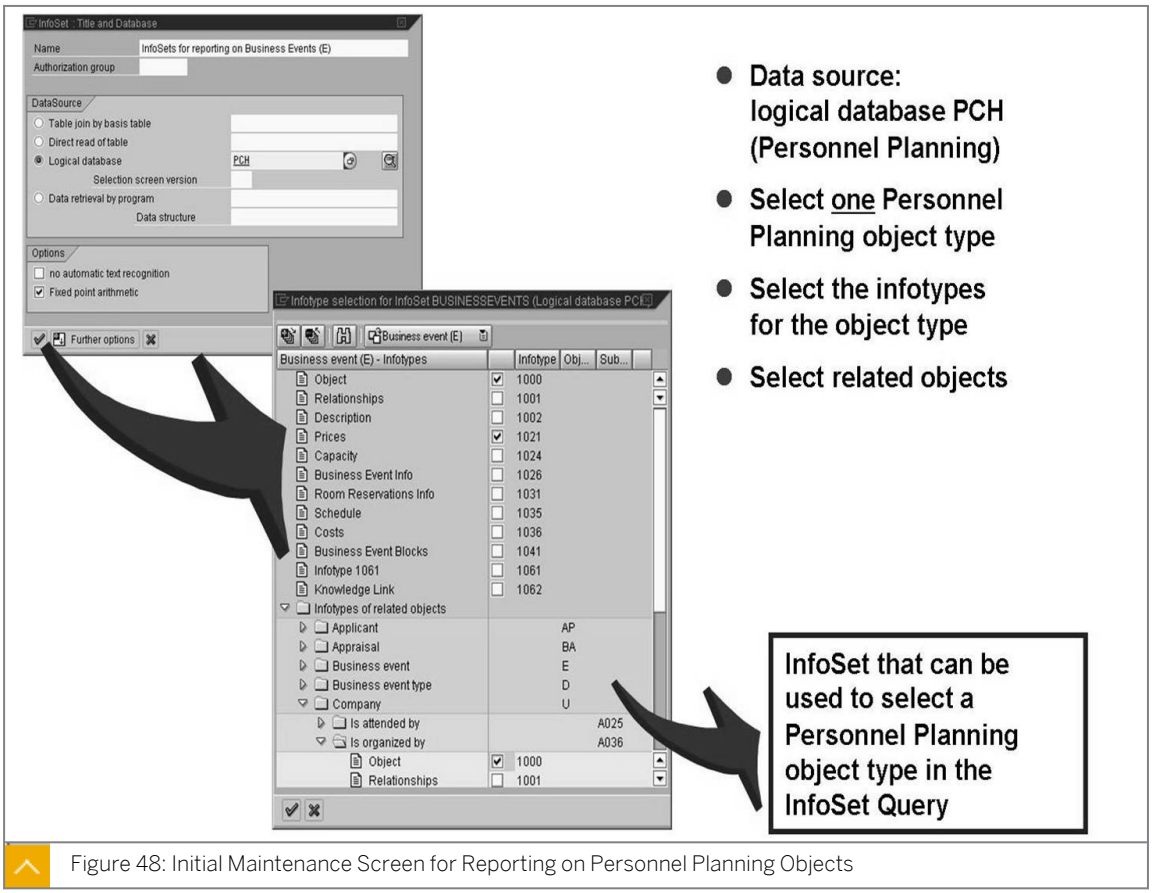


Figure 48: Initial Maintenance Screen for Reporting on Personnel Planning Objects

If you use the logical database PCH to create an InfoSet to select objects in the InfoSet query, first select the object type.

The infotypes are then available for selection. In addition, all object types with which the selected object type can be related are listed under *Infotypes of related objects.* The next level of this hierarchy display shows all relationships that can exist between the relevant object type and the object type that can be selected.

The next level of display shows the infotypes for the selected objects.

Maintenance Interface

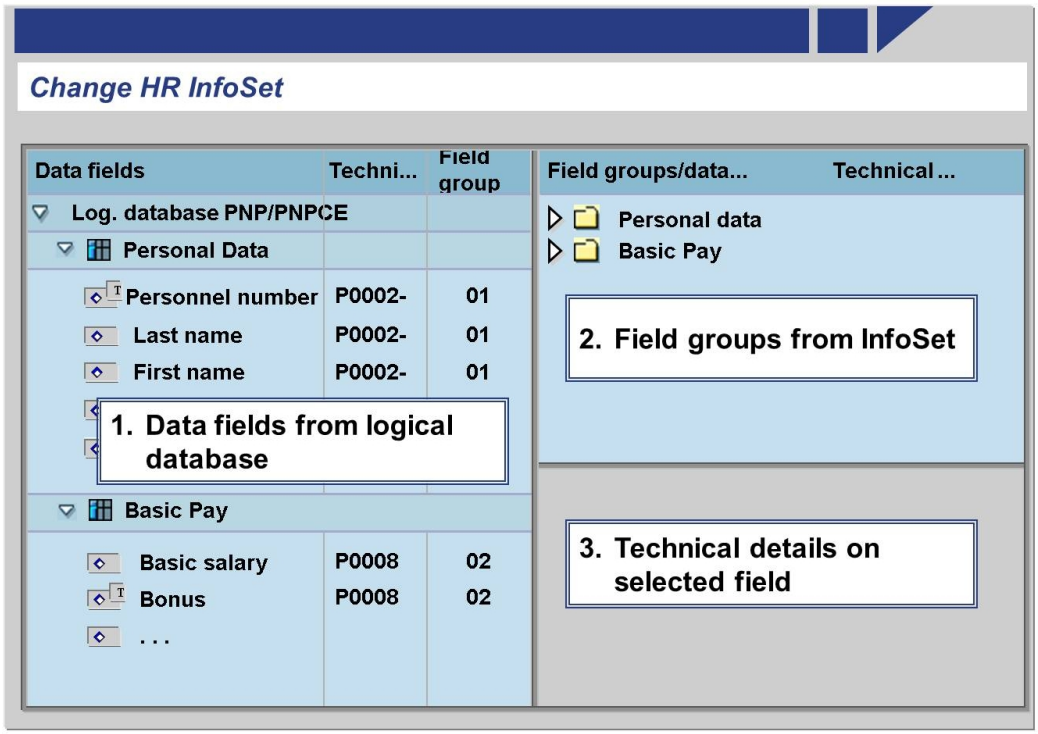


Figure 49: Maintenance Interface for HR InfoSets

The InfoSet maintenance interface is divided into the following sections:

- Data field management:

  The complete left-hand side of the screen displays data field management in a tree structure.

- Field group management:

  This section is located at the top right corner in a tree structure.

- Technical details management:

  This section is located at the bottom right of the screen and displays the details of a field for detailed processing when you double-click the field. The data field is displayed in two different formats, with or without text field. If the data field is displayed with text field, it means that the system has found a text for this field, for example, in another table. You can find the link through a foreign key in the dictionary. When you process the query, specify in the settings whether the system outputs the value of the data field or the value of the text field.

Note:
To see the context menu of functions for the nodes in the tree structure, right-click an object. For example, to assign a data field to a field group, right-click the relevant field group. In the query, you can only select fields that you have assigned to a field group.

LESSON SUMMARY

You should now be able to:

- Create a new InfoSet to include the information required for reporting

Using InfoSet Switches

LESSON OVERVIEW

This lesson explains the different infotype switches that are available to control reporting data output.

Business Example

As the HR Reporting Analyst, you are responsible for generating various reports. When creating various reports, InfoSet switches can be used to control reporting output. For this reason, you require the following knowledge:

- An understanding of InfoSet switches
- An understanding of the additional fields available for reporting
- An understanding of the InfoSet log

LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Outline InfoSet switches processed by the Query Generator

InfoSet Switches

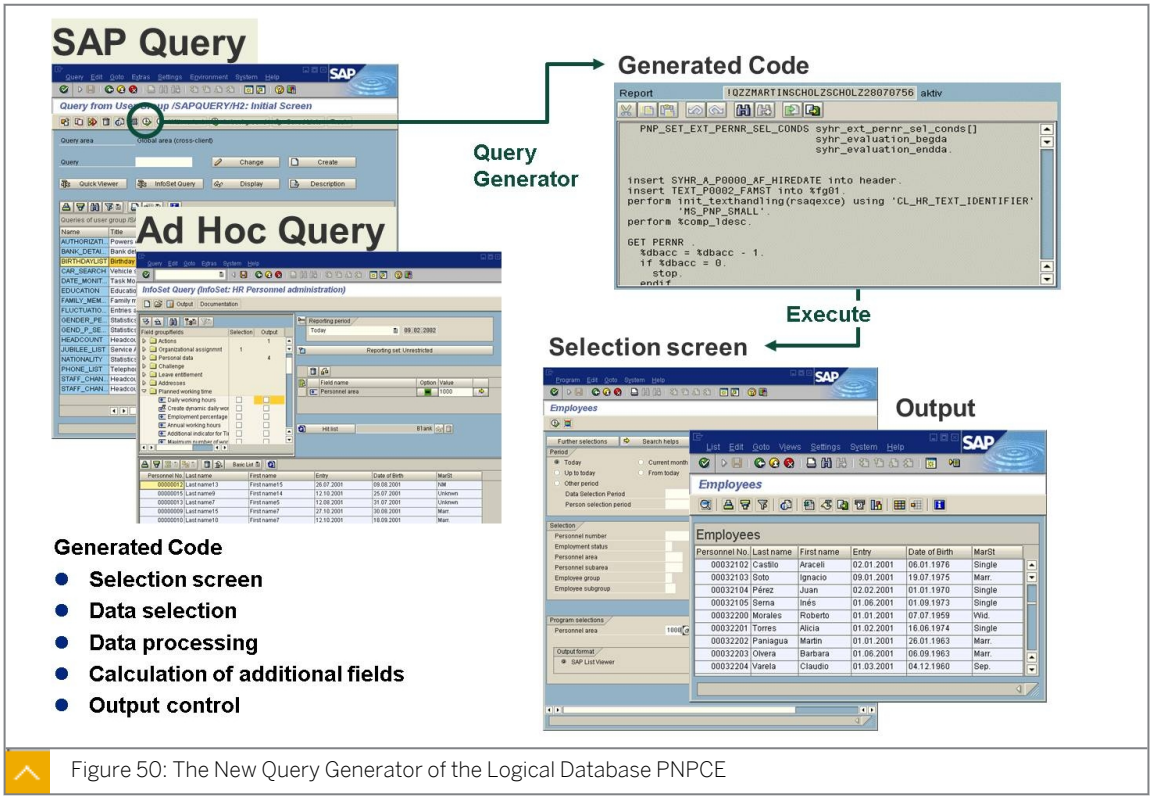


Figure 50: The New Query Generator of the Logical Database PNPCE

If you use generic reporting tools, such as SAP Query and InfoSet Query, the source code is automatically generated using the Query Generator. The source code generated in this way is regulated by the generation logic of the Query Generator and query definition.

As of SAP Enterprise Core 4.70 (SAP_HR 470), a new query generator is available in SAP Query for the logical databases of HR.

Using the Query Generator available in SAP Query, you can configure the query logic at the InfoSet level. This gives you more flexibility when you want to define queries to meet different requirements.

You can make the settings using a switch, which the Query Generator processes. General switches and infotype-specific switches can be used.

The Query Generator generates the source code automatically.

Switches are of the following types:

- General switches:

  General switches are used to control the settings that are valid for the entire InfoSet.

- Infotype-specific switches:

  Infotype-specific switches control the settings that are defined for each infotype.

General Switches

The following list contains examples of general switches and their descriptions:

Table 3: General Switches

General Switch	Description
BL_ALLOW DUP_LINES	Output identical (double) lines in the basic list
REPORT_CLASS	Set up the report category (PNP and PNPCE)
PROCESS_LOCKED_RECORDS	Process the locked data records (PNP and PNPCE)
PROC_PERNR_PARTIAL_AUT	Process persons for which only partial authorization is available (PNP and PNPCE)
PERSON_ONLY_ONCE	Process each person once only (PNPCE)

Infotype-Specific Switches

The following list contains examples of infotype-specific switches along with their descriptions:

Infotype-Specific Switch	Description
LAST_RECORD_ONLY	Process only the last data record
PROVIDE	Merge neighboring or overlapping data records
PROVIDE_FIELD	Select relevant fields for merging data records
PRIMARY_INFTY	Determine infotype relationship to primary infotype (infotype views)

Infotype-Specific Switch	Description
TIME_DEPENDENCE	Determine time dependence
DATA_REQUIRED	Determine existence of data records required
SPLIT_DATA_REQUIRED	Determine existence of data records required in split period
NO_INDIRECT_EVALUATION	Specify indirectly reported wage types are not calculated
IGNORE_WAGE_TYPE_OPERA	Ignore operation indicators (for deduction wage types)
NO_DUPLICATE_LANGU	Determine data records to be output in one language only
CASE_SENSITIVE_SEL	Determine case-sensitive selection
ADD_FIELDS_SPLIT_DEP	Determine HR additional fields considered split-dependent
SPLIT_DEPENDENT_AF	Determine technical name of an HR additional field that is split-dependent
SPLIT_INDEPENDENT_AF	Determine technical name of an HR additional field that is split-independent

For detailed information about the switches and how they are used, see the documentation for the Customizing activity Create InfoSets for HR. To access these Customizing activities, choose *Personnel Management → Human Resources Information System → HR Settings for SAP Query → Create InfoSets for HR.*

Example – General Switch

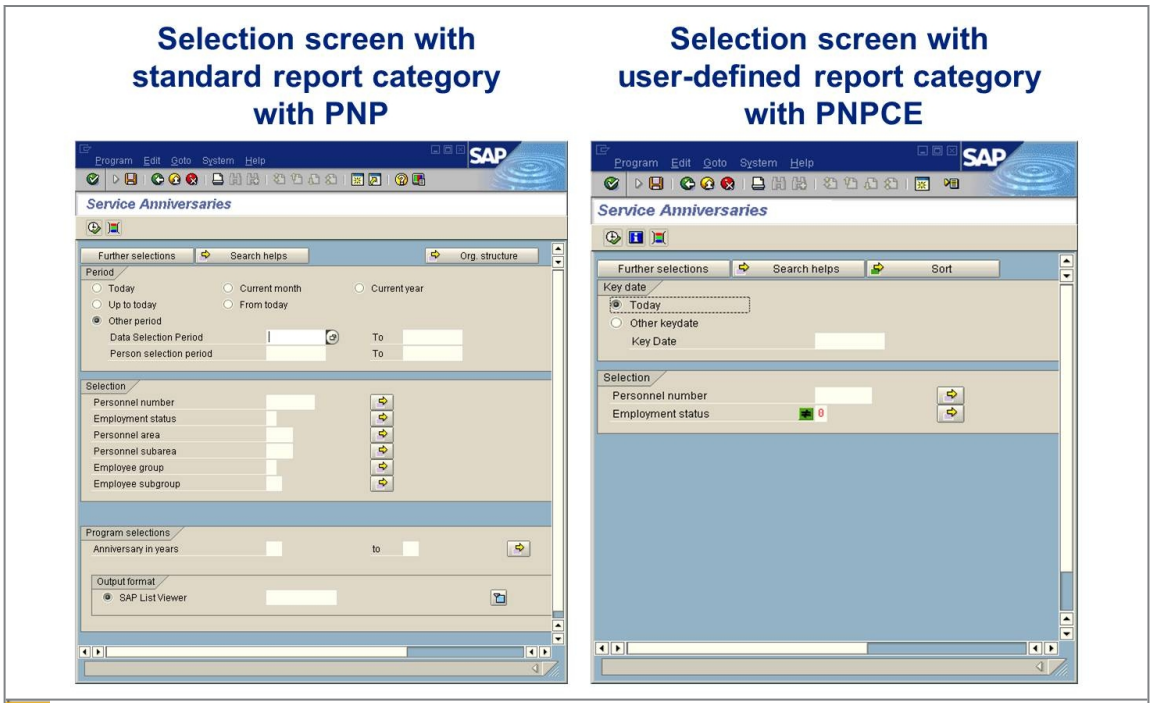


Figure 51: Example – General Switch

The REPORT_CLASS switch is used to define a report category that enables you to control the structure of the selection screen. This report category concept applies to the logical

databases PNP and PNPCE. Each report that is based on either of the two logical databases can be assigned to a specific report category.

You maintain report categories in *Customizing* under *Personnel Management → Human Resources Information System → Reporting → Adjusting the Standard Selection Screen → Create Report Categories.*

A default report category is assigned in the standard system according to the logical database on which the InfoSet is based. If the InfoSet is based on the logical database PNP, the report category ___X2001 is used. If this report category does not exist, the report category ___22002 is used. If the InfoSet is based on the logical database PNPCE, the report category QUEPNPCE is used.

Because PNP and PNPCE use different report categories, you must ensure that the specified report category is created for the logical database used in the infotype.

Note:

- The REPORT_CLASS switch cannot be used for InfoSets that are based on databases other than the logical databases PNP and PNPCE.
- Because each query is a generated report, you can assign report categories to queries too.
- Ad Hoc Query does not use the data selection screen of the logical database to define the selection conditions. The specification of a report category in Ad Hoc Query has no obvious effect.

Examples of switches are as follows:

- *HR [COMMON]
- *HR REPORT_CLASS = '0MYREPCL'

Example – Infotype-Specific Switch

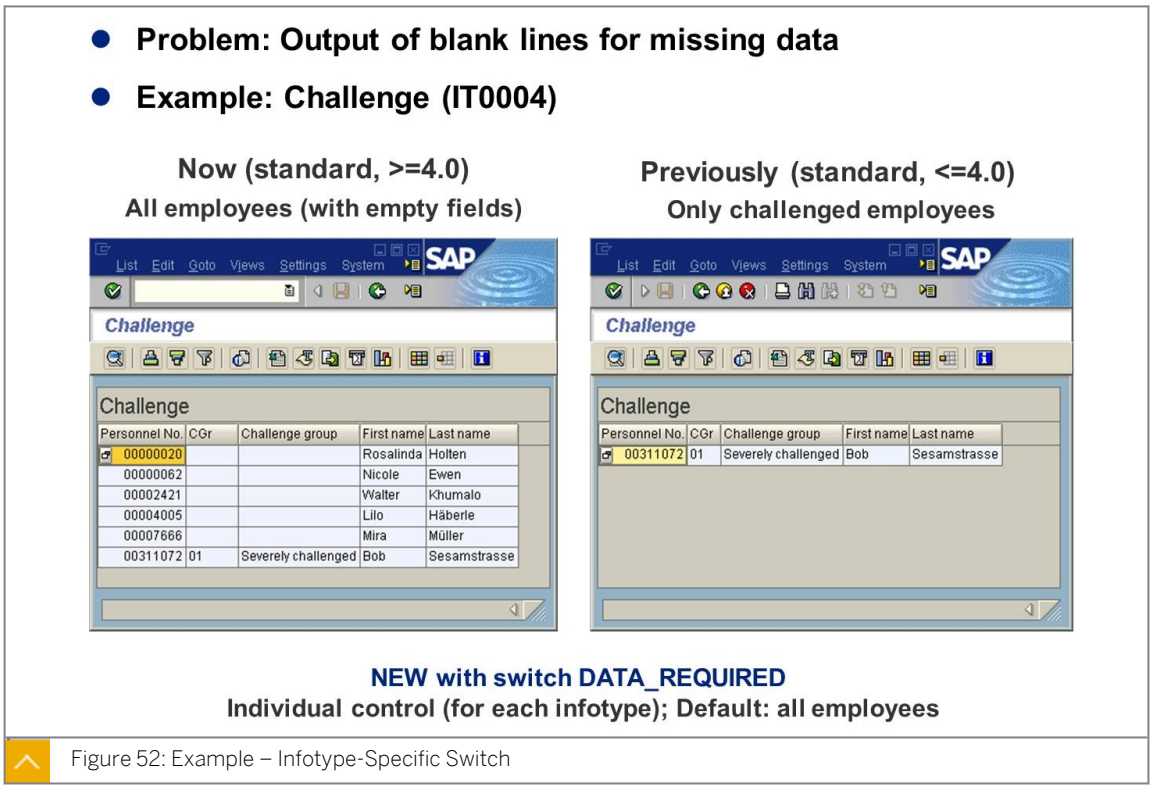


Figure 52: Example – Infotype-Specific Switch

Data does not always exist for all infotypes that are displayed in a query. By default, queries display initial values for persons or objects for which no data records exist. Alternatively, you can choose not to display persons or objects for which no data records exist. To do this, use the DATA_REQUIRED switch. If the switch is set, a person or object is displayed only if at least one data record exists in the evaluation period.

Note:
Before release 4.0, only persons for whom data records existed were displayed by default.

The DATA_REQUIRED switch can be set to any one of the following values:

- "X" = Only persons and objects that have at least one data record in the evaluation period are displayed.
- " "= This is the default value. All persons and objects that fulfill the selection conditions are displayed. If no data records exist for one of these persons or objects, the initial values are displayed.

A similar switch, SPLIT_DATA_REQUIRED, allows even more control.

Examples of the DATA_REQUIRED switch are as follows:

- *HR [P0004]
- *HR DATA_REQUIRED = 'X'

Use of Switches in InfoSets – Step 1

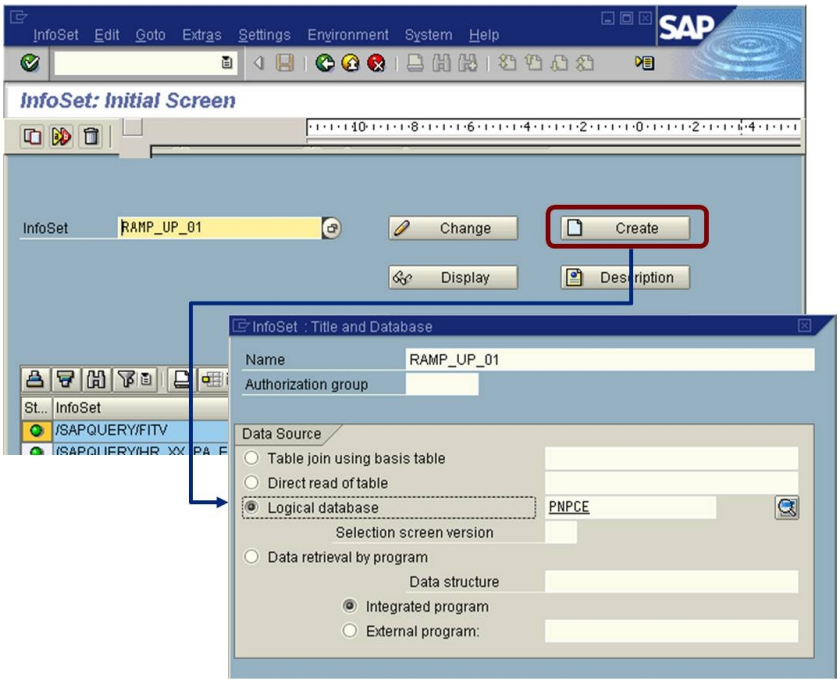


Figure 53: Using Switches in InfoSets – Step 1

Enter the short text and choose *Create*. Then select the logical database **PNPCE**.

Use of Switches in InfoSets – Step 2

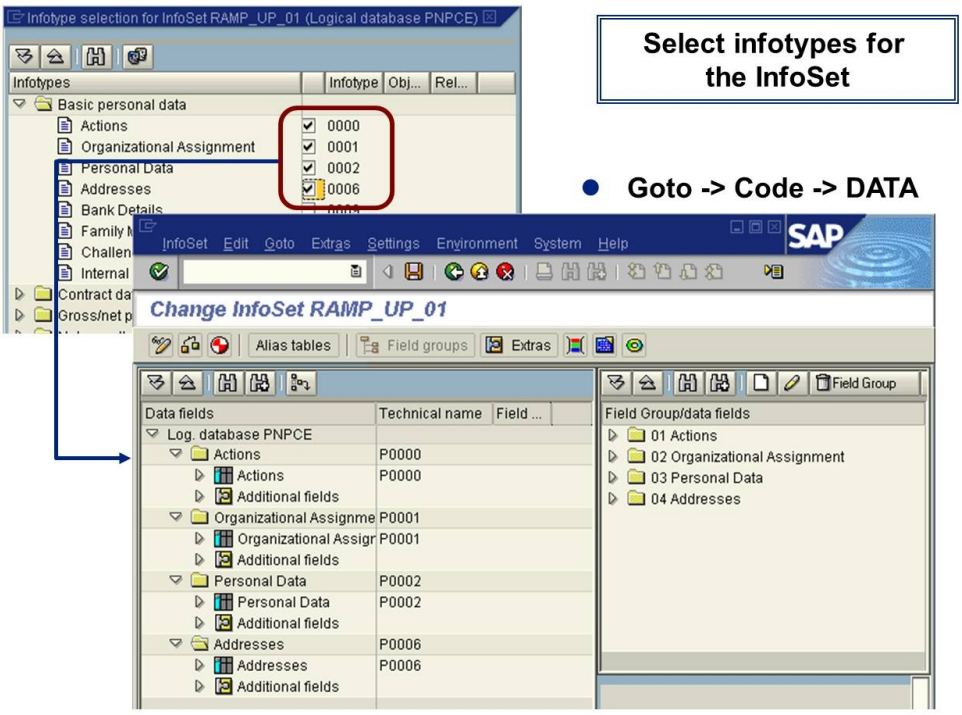


Figure 54: Using Switches in InfoSets – Step 2

To make InfoSet specific settings, on the *Change InfoSet <Name of InfoSet>* screen, choose *Goto → Code → Data*.

Use of Switches in InfoSets – Step 3

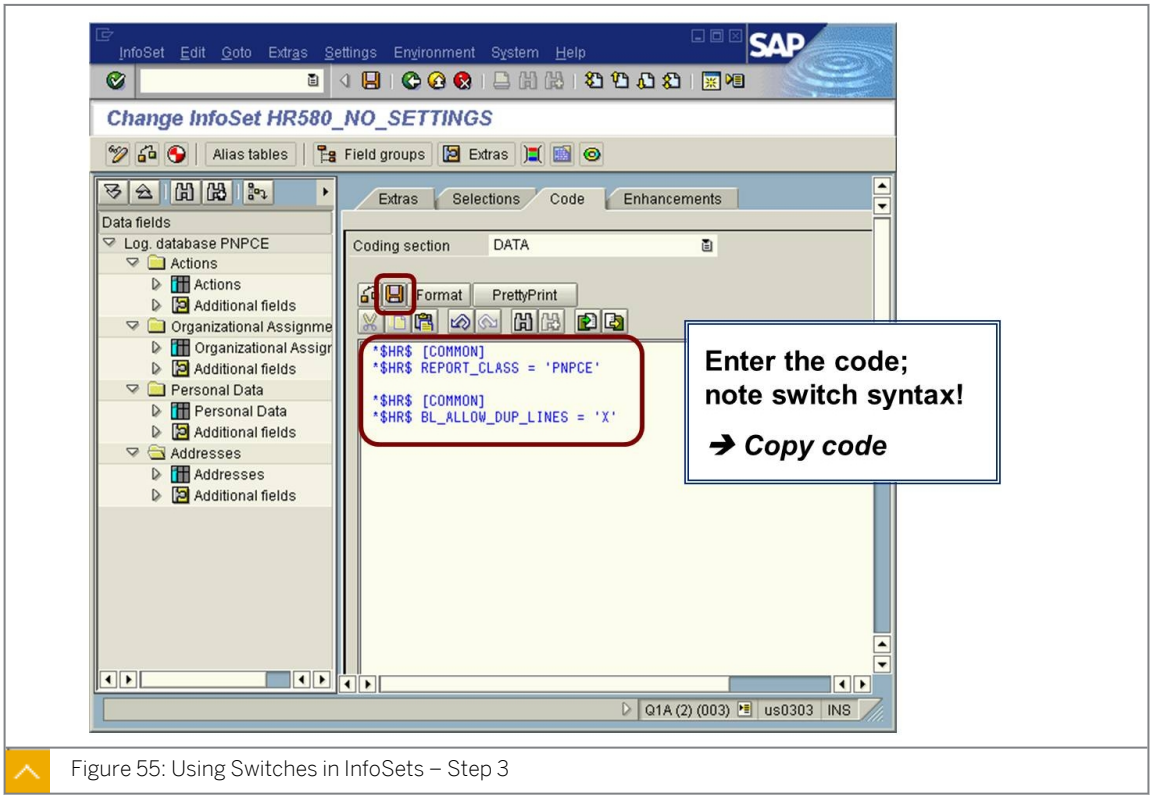


Figure 55: Using Switches in InfoSets – Step 3

In the right screen area (coding tab or coding section DATA), enter the switch and the value for the setting you require. See the documentation in Customizing under *HR Settings for SAP Query → Create InfoSets for HR.*

General switches have the following syntax:

- *HR [COMMON]
- *HR NAME_OF_SWITCH = “VALUE”

Infotype-specific switches (NNNN = infotype number) have the following syntax:

- Definition of an infotype
  - *HR [PNNNN]
  - *HR NAME_OF_SWITCH = “VALUE”
- Specification of different infotypes
  - *HR [P0000, P0004, P0006]
- Specification of an area
  - *HR [P0006 # P0009]
- Templates or placeholders (+ for one character, * for several characters)
  - *HR [P00++]

- *HR [P*]
- *HR [P0+1*]

Use of Switches in InfoSets – Step 4

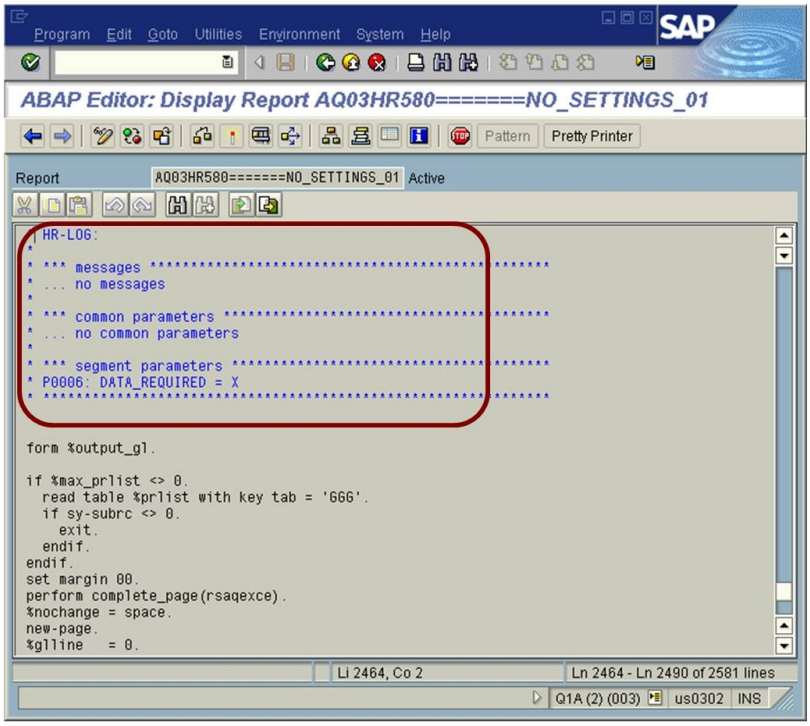


Figure 56: Using Switches in InfoSets – Step 4

Check the generated code for the query.

In the maintenance transaction for queries, choose *Query* → *More Functions* → *Display Report Name*.

In the ABAP editor, enter the <report name> → *Display* and find "HR-LOG".

Additional Reporting Fields

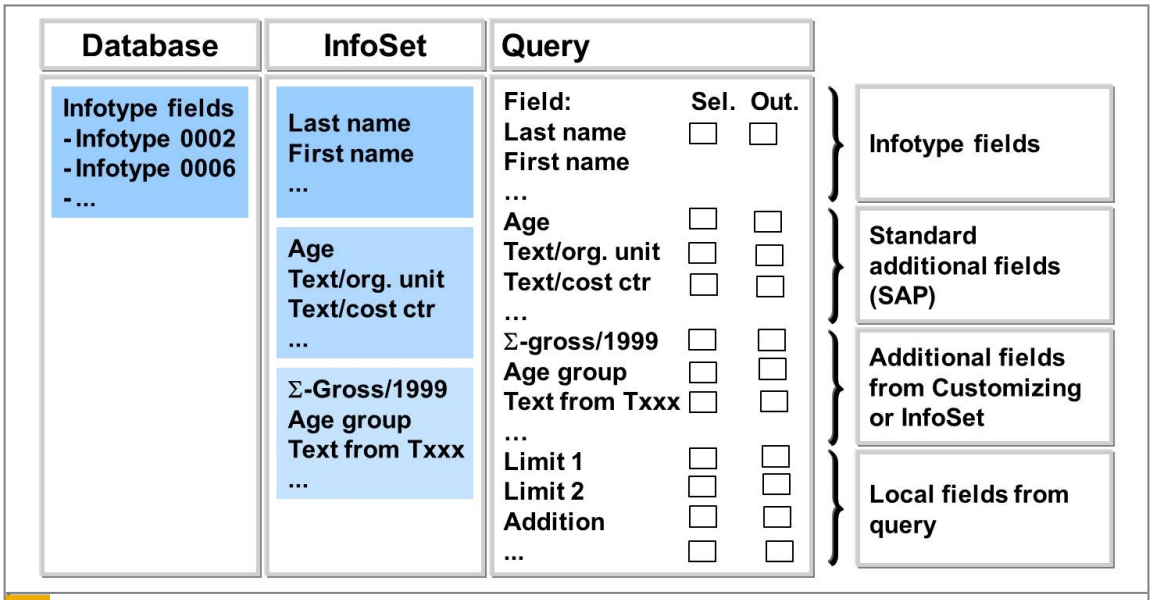


Figure 57: Additional Fields and Local Fields

The term additional fields covers all the fields that do not exist in the database table of the corresponding infotype, but that are available for reporting purposes.

The additional fields can be grouped under the following categories:

- Standard additional fields

  These fields are additional fields that are required by most customers. They are available in the standard system when InfoSets are created.

- Additional fields defined by customers

  These fields are defined by customers to meet company-specific requirements. They can be created in Customizing for HR or when an InfoSet is created. If you create these fields in Customizing (under *HR Settings for SAP Query → Additional Information about InfoSet Maintenance → Define Additional Fields*), they are always available when you create InfoSets. If you create them in an InfoSet, they are only available in that particular InfoSet.

> Note:
> Like additional fields, local fields are used to meet specific requirements. They are defined within a query and are available only for that query, such as SAP Query.

InfoSet Log

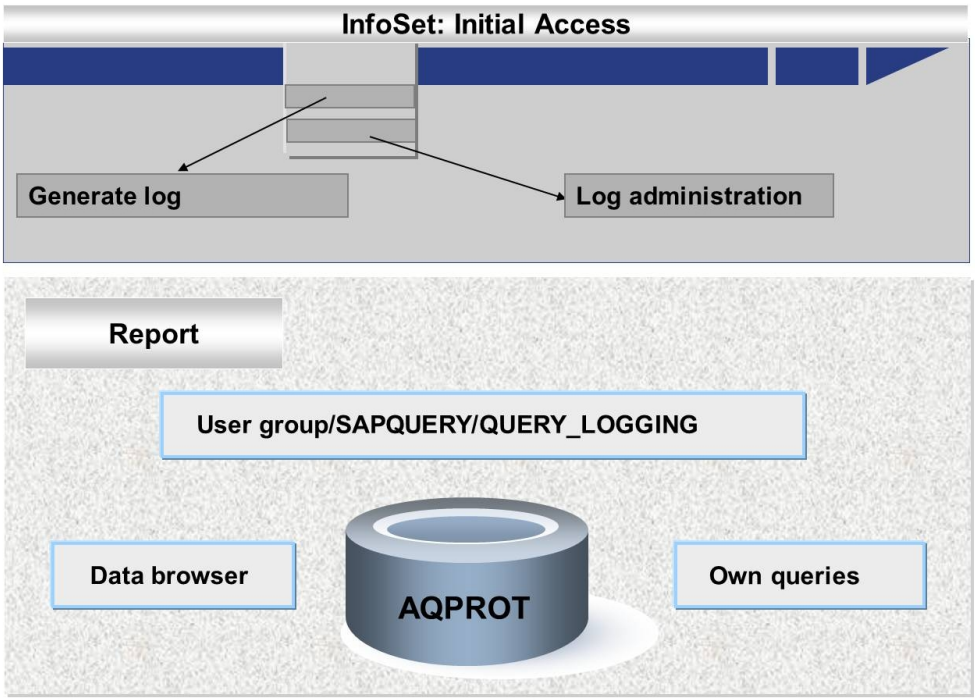


Figure 58: Logging 1

To use Ad Hoc Query to receive logs about the execution of queries, you must link an InfoSet to logging. You can do this in the maintenance transaction SQ02 in the *Extras* menu.

If you then create and execute a query using this InfoSet (the query does not have to be saved), the system saves information such as the user and entries on the selection screen (table AQPROT). You can report on this information using the data browser, existing queries from user group /SAPQUERY/QUERY_LOGGING (in the user group SAPQuery/SQ in the global work area), or with your own queries.

You can delete the logs in maintenance transaction SQ02 under *Extras* → *Manage logs.*

You access a selection screen on which you can restrict the logs that are deleted. For example, you can delete all the logs for a user.

Query Logs

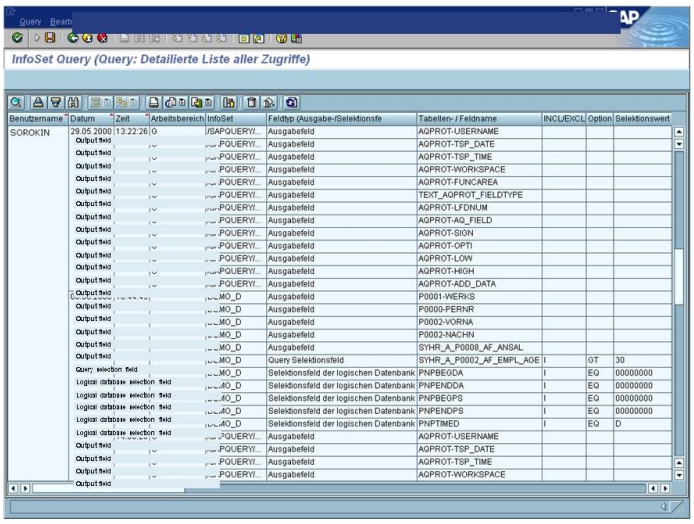


Figure 59: Logging 2

Logs are optional. You can log the queries that have been started using Ad Hoc Query or InfoSet Query.

The following fields are logged:

- Query area
- InfoSet
- User
- Date and Time
- Selection Fields
- Selection Values
- Selection Options
- Output Fields

You can switch the log function on and off. You can delete any logs that you no longer require. Furthermore, you can add your own log function using the Business Add-In AQ_QUERY_PROT. You can also analyze the logs with InfoSet Query or Data Browser.

For more information about logs, in Customizing, choose *SAP NetWeaver → Application Server → SAP Query → Logging*.

LESSON SUMMARY

You should now be able to:

- Outline InfoSet switches processed by the Query Generator

Learning Assessment

1. Which of the following options are functions of logical databases?

   Choose the correct answers.

   - [ ] **A** Data retrieval
   - [ ] **B** Preselection
   - [ ] **C** Authorization check
   - [ ] **D** User group validation

2. Logical databases provide a particular view of the database tables in the SAP system.

   Determine whether this statement is true or false.

   - [ ] True
   - [ ] False

3. Which of the following logical databases deals with Payroll?

   Choose the correct answer.

   - [ ] **A** PCH
   - [ ] **B** PAP
   - [ ] **C** PNPCE

4. InfoSets are structured according to the:

   Choose the correct answer.

   - [ ] **A** User group
   - [ ] **B** Field group
   - [ ] **C** Logical database
   - [ ] **D** Queries

5. The user assigned to a user group needs an authorization to make any changes to the queries.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

6. A user can be part of more than one user group.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

7. An infotype can be selected from an InfoSet at any time.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

8. In a query, you can only select fields that you have assigned to a field group.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

9. While processing a query, you do not have to specify the values of the data or text fields.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

10. Which of the following options are characteristics of Ad Hoc Query?

    Choose the correct answers.

    ☐ A Can be saved and retrieved later

    ☐ B Cannot be modified

    ☐ C Can include further infotypes

    ☐ D Cannot apply restrictions

11. Which of the following are infotype-specific switches?

    Choose the correct answers.

    - ☐ A PROVIDE
    - ☐ B TIME_DEPENDENCE
    - ☐ C PERSON_ONLY_ONCE
    - ☐ D REPORT_CLASS

12. Which report category is used if the InfoSet is based on the logical database PNP?

    Choose the correct answer.

    - ☐ A __22002
    - ☐ B QUEPNPCE
    - ☐ C ___X2001

13. You want to display only those persons and objects that have at least one data record in the evaluation period. What value would you set for the DATA_REQUIRED switch?

    Choose the correct answer.

    - ☐ A " "
    - ☐ B "X"

Learning Assessment - Answers

1. Which of the following options are functions of logical databases?

   Choose the correct answers.

   - [X] A Data retrieval
   - [X] B Preselection
   - [X] C Authorization check
   - [ ] D User group validation

2. Logical databases provide a particular view of the database tables in the SAP system.

   Determine whether this statement is true or false.

   - [X] True
   - [ ] False

3. Which of the following logical databases deals with Payroll?

   Choose the correct answer.

   - [ ] A PCH
   - [ ] B PAP
   - [X] C PNPCE

4. InfoSets are structured according to the:

   Choose the correct answer.

   - [ ] A User group
   - [X] B Field group
   - [ ] C Logical database
   - [ ] D Queries

5. The user assigned to a user group needs an authorization to make any changes to the queries.

   Determine whether this statement is true or false.

   [X] True

   [ ] False

6. A user can be part of more than one user group.

   Determine whether this statement is true or false.

   [X] True

   [ ] False

7. An infotype can be selected from an InfoSet at any time.

   Determine whether this statement is true or false.

   [X] True

   [ ] False

8. In a query, you can only select fields that you have assigned to a field group.

   Determine whether this statement is true or false.

   [X] True

   [ ] False

9. While processing a query, you do not have to specify the values of the data or text fields.

   Determine whether this statement is true or false.

   [ ] True

   [X] False

10. Which of the following options are characteristics of Ad Hoc Query?

    Choose the correct answers.

    - [X] A Can be saved and retrieved later
    - [ ] B Cannot be modified
    - [X] C Can include further infotypes
    - [ ] D Cannot apply restrictions

11. Which of the following are infotype-specific switches?

    Choose the correct answers.

    - [X] A PROVIDE
    - [X] B TIME_DEPENDENCE
    - [ ] C PERSON_ONLY_ONCE
    - [ ] D REPORT_CLASS

12. Which report category is used if the InfoSet is based on the logical database PNP?

    Choose the correct answer.

    - [ ] A __22002
    - [ ] B QUEPNPCE
    - [X] C ___X2001

13. You want to display only those persons and objects that have at least one data record in the evaluation period. What value would you set for the DATA_REQUIRED switch?

    Choose the correct answer.

    - [ ] A " "
    - [X] B "X"

UNIT 5 Ad Hoc Query

UNIT OBJECTIVES

- Describe the basic concepts of Ad Hoc Query
- Create queries by using Ad Hoc Query
- Create complex queries with additional options in Ad Hoc Query
- Create reports with enhanced reporting output results
- Create a dashboard based on an Ad Hoc query

Unit 5
Lesson 1

Identifying the Components of Ad Hoc Query

LESSON OVERVIEW
This lesson explains how to define simple queries using Ad Hoc Query.

Business Example

You need to define reports that are not available as standard reports in the SAP system. For this reason, you require the following knowledge:

- An understanding of Ad Hoc Query
- An understanding of the integration of Ad Hoc Query
- An understanding of user groups

LESSON OBJECTIVES
After completing this lesson, you will be able to:

- Describe the basic concepts of Ad Hoc Query

Ad Hoc Query Basics

Ad Hoc Query is a tool that enables you to access and report data from Human Resources. It involves choosing the selection and output fields.

You can use Ad Hoc Query to report on the following data:

- HR master data, data from Time Management, and payroll results (logical database PNPCE)
- Applicant master data (logical database PAP)
- Data from Personnel Planning (logical database PCH)

Unlike standard reports that use logical databases to retrieve data, Ad Hoc Query selects the requested data directly from the database. As a result, the performance of Ad Hoc Query is better than that of standard reports. The standard authorization check is performed when data is selected and output.

You do not need programming skills to use Ad Hoc Query. Instead, you can choose selection and output fields simply by clicking on them or by using drag and drop.

Overview of Ad Hoc Query

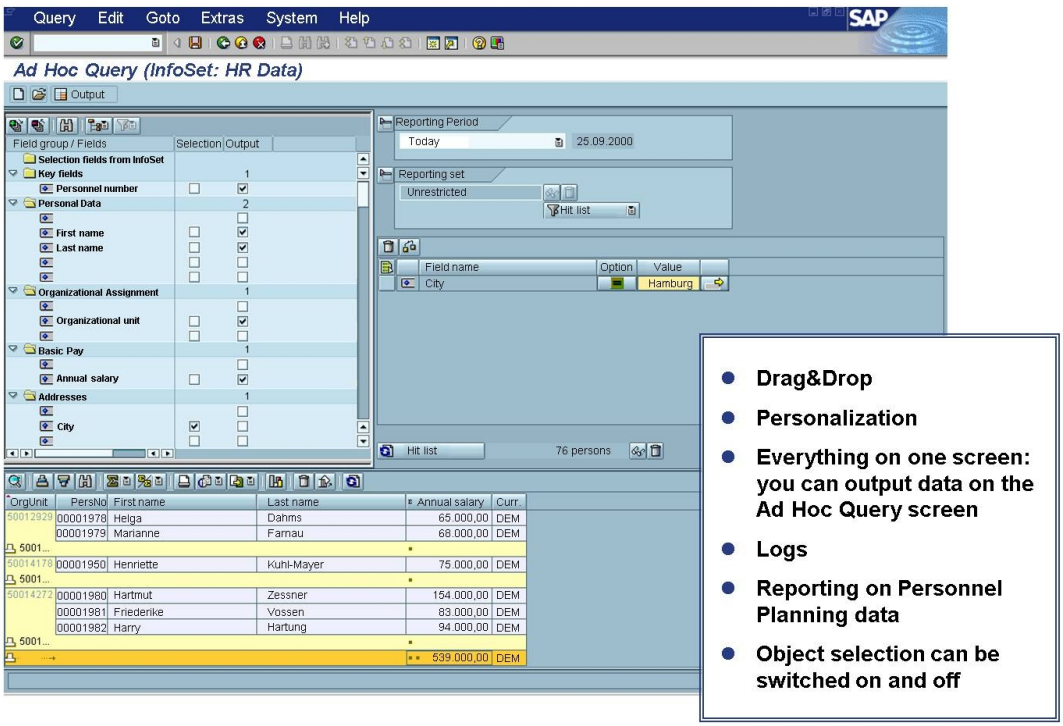


Figure 60: Overview of Ad Hoc Query

Ad Hoc Query offers the following features:

Drag and drop:

You can choose selection and output fields easily by using the drag and drop function. Select the fields you need and drag them to the *Selection* or *Output* area. If the field names of a field group have values and text, you can either use the text, the value, or both.

Personalization:

When you exit Ad Hoc Query or logoff from the system, the system saves your user settings (for example, for the last queries you accessed) and reloads them the next time you start the query.

Object selection:

You can switch off object selection and work in basic mode by choosing *Extras* → *Switch Off Object Selection*. This enables you to use all basic modes, such as selections using texts.

Output preview:

You can output real data on the *Ad Hoc Query* screen.

Integration of Ad Hoc Query

You can access Ad Hoc Query from the following systems and HR tools:

- Information system:

  You can access Ad Hoc Query in HR as a standalone tool from the various info systems in the *SAP Easy Access* menu.

- HIS:

  A set of selected persons is available in HIS as a reporting set in Ad Hoc Query. You can make further selections from this set or use it as a hit list and output data on the persons. You can even use saved queries for the selected set of persons.

- Manager's Desktop:

  You can use Ad Hoc Query to process sets of persons determined in Manager's Desktop. To do this, select a suitable object from the *Employee* theme category in Manager's Desktop and call Ad Hoc Query.

- HR input helps:

  Ad Hoc Query is also available in many HR input helps to select objects in the system for fast data entry in *Personnel Administration*.

- Processing of selected object set in general reporting:

  You can use standard reports to continue processing sets of objects selected by Ad Hoc Query.

User Groups

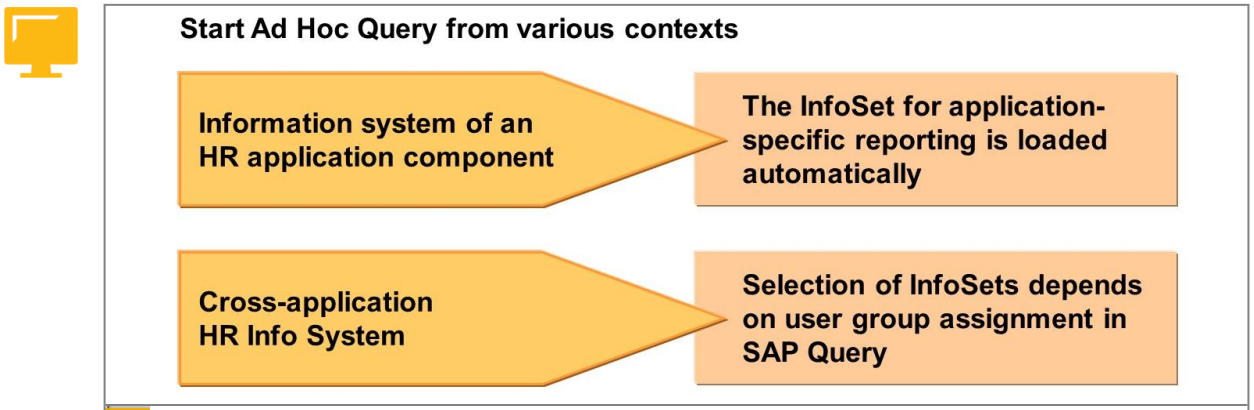


Figure 61: Structure of HR Info Systems

Before users can start the InfoSet query using the delivered InfoSets, they must be assigned to the relevant user group in SAP Query.

The following SAP Query user groups are used for individual application components:

- /SAPQUERY/H0 for Compensation Management
- /SAPQUERY/H1 for Benefits
- /SAPQUERY/H2 for Personnel Administration
- /SAPQUERY/H3 for Personnel Development"
- /SAPQUERY/H4 for Recruitment
- /SAPQUERY/H5 for Training and Event Management

LESSON SUMMARY

You should now be able to:

- Describe the basic concepts of Ad Hoc Query

Unit 5
Lesson 2

Creating Reports Using Ad Hoc Query

LESSON OVERVIEW

This lesson explains how Ad Hoc Query is used for HR reporting.

Business Example

You need to define your own reports when such reports are not available as standard reports in the SAP system. For this reason, you require the following knowledge:

- An understanding of the principles of Ad Hoc Query
- An understanding of the selection options in Ad Hoc Query

LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Create queries by using Ad Hoc Query

Ad Hoc Query Principles

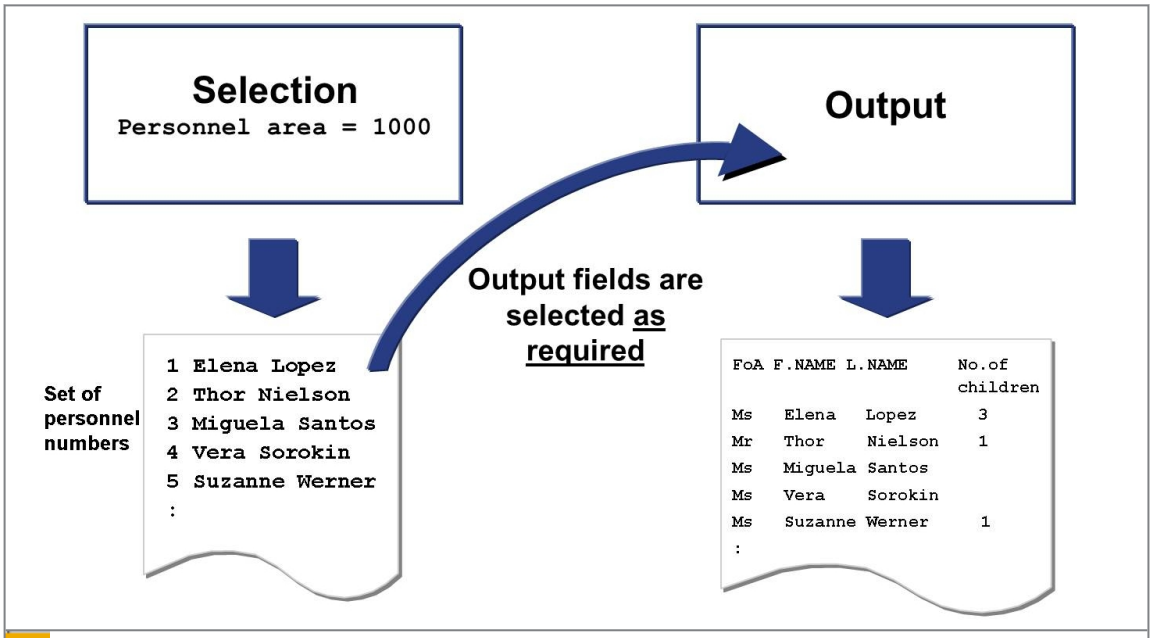


Figure 62: Principle of Ad Hoc Query

The basic mode of operation of Ad Hoc Query consists of the following steps:

1. Define one or more selection criteria and then start the selection. The result of this selection is a set of objects, such as persons, applicants, business events, or positions.
2. Output the data as required for the selected objects.

Ad Hoc Query Screen

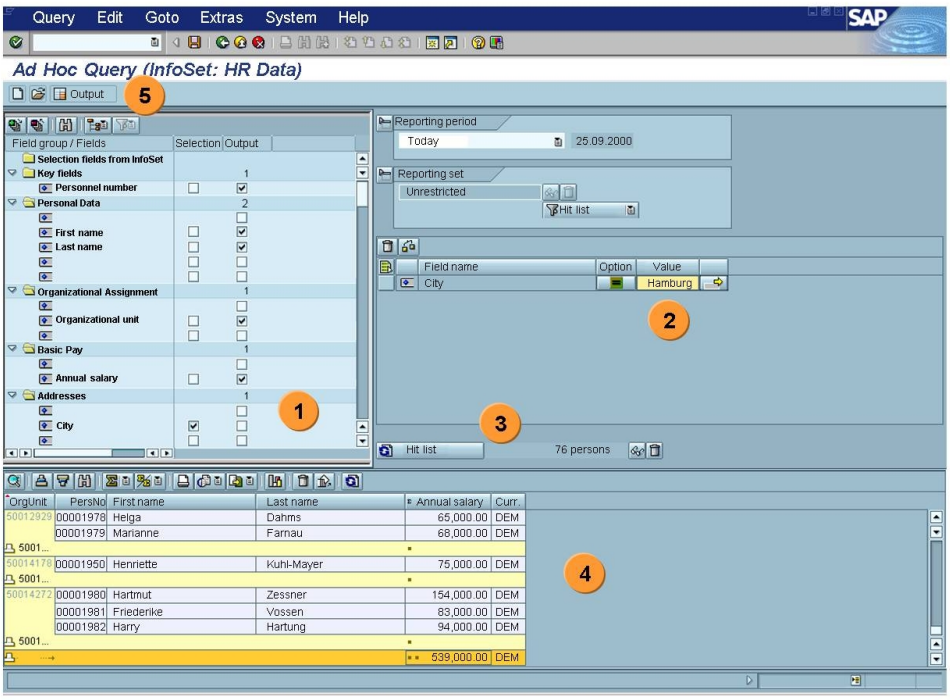


Figure 63: Ad Hoc Query Screen

The Ad Hoc Query screen is divided into the following main areas:

- The field groups and fields of the current InfoSet are displayed on the left of the screen. This part of the screen is used to select the selection and output fields.
- The right side of the screen enables you to determine selection values and execute your selection.
- The lower part of the screen contains an output preview.

When working with Ad Hoc Query, proceed as follows:

1. Select the selection and output fields in the overview tree.
2. Enter a value and choose a selection option, if necessary.
3. Execute the selection (the hit list is determined by selecting objects that match the selection criteria).
4. Format the output in the *Output* preview.
5. Access the output.

InfoSets for Ad Hoc Query

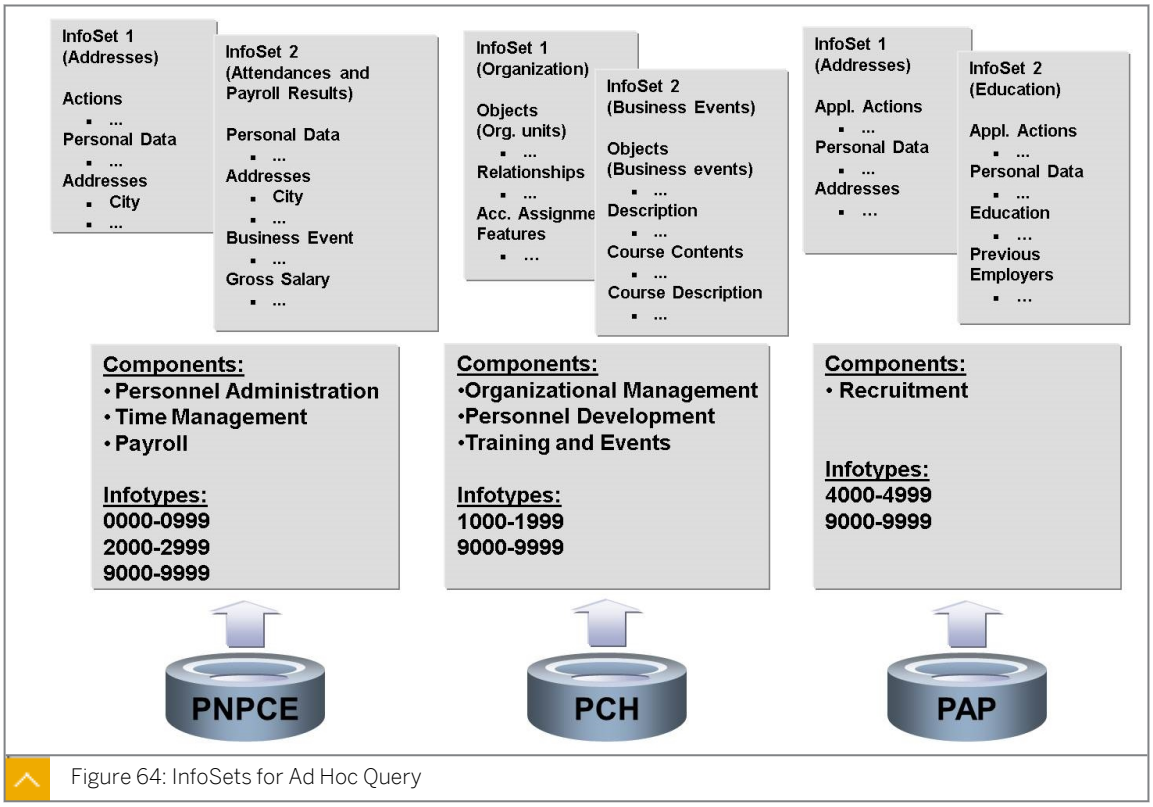


Figure 64: InfoSets for Ad Hoc Query

The InfoSets required for Ad Hoc Query are created and managed in SAP Query. When you create an InfoSet, you select the logical database on which it is based, and determine the infotypes that it includes. The infotypes are subsequently displayed in the InfoSet as field groups. Once you have selected your infotypes, you determine the fields of each infotype to be included in the field group.

The following scenarios illustrate how the InfoSet determines the objects that you can select with Ad Hoc Query:

- InfoSet based on PNP or PNPCE
  - The InfoSet based on the logical databases PNP or PNPCE enables you to use Ad Hoc Query to select employees and then output data on them.
  - You can include *Personnel Planning* infotypes in these InfoSets. Consequently, you can use them to output person-related personnel planning data on the persons selected.
  - You can also use these InfoSets to report on payroll results.
- InfoSet based on PAP

  The InfoSet based on the logical database PAP enables you to use Ad Hoc Query to select applicants.
- InfoSet based on PCH

  The InfoSet based on the logical database PCH enables you to use Ad Hoc Query to select objects of one object type, such as business events, qualifications, or positions. When you create the InfoSet, you determine the object type.

Choose Selection and Output Fields

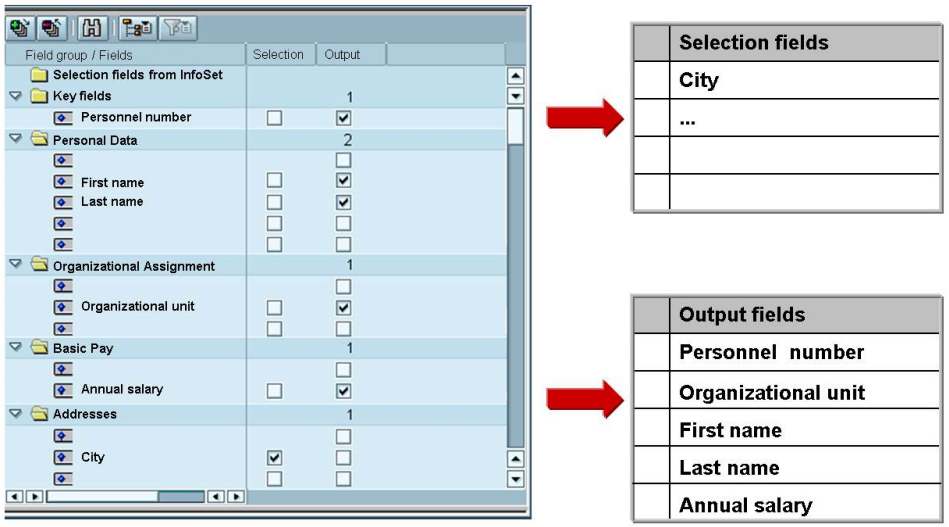


Figure 65: Choose Selection and Output Fields

To access data in the system, Ad Hoc Query uses an InfoSet that provides a view of data in specific areas of HR. The view is structured by infotype. The InfoSet is displayed as an overview tree on the initial *Ad Hoc Query* screen.

You can select the selection and output fields by using drag and drop. To do so, select one or more fields and then drag them to the *Selection* or *Output* area.

If the selection and output fields have values and texts, you can use the text, the value, or both in the following ways.

You can choose the selection field in the Selection column of the overview tree. The field is then copied to the list of selection criteria on the right of the screen. If you use more than one selection criterion, they are linked by the AND logic. For example, by using the City and Age fields, you can select all persons who live in London and are 25 years old. If you select a field in the Selection column, you can use it as a selection field.

You also choose output fields in the overview tree. The fields are then copied to the output preview as columns. You can choose output fields either at the same time as you choose selection fields or afterwards. You can choose the output field from field groups as required.

You can output field contents as values (value output) and sometimes as text (text output). For example, you could specify the form of address key as value: 01, text: Mr; value: 02, text: Ms. If in doubt, specify both. The text often conveys more meaning. If you are a power user, you may require only the values.

The number of selection criteria and output fields that you have chosen is specified in the overview tree for each field group.

Treatment of Text Fields

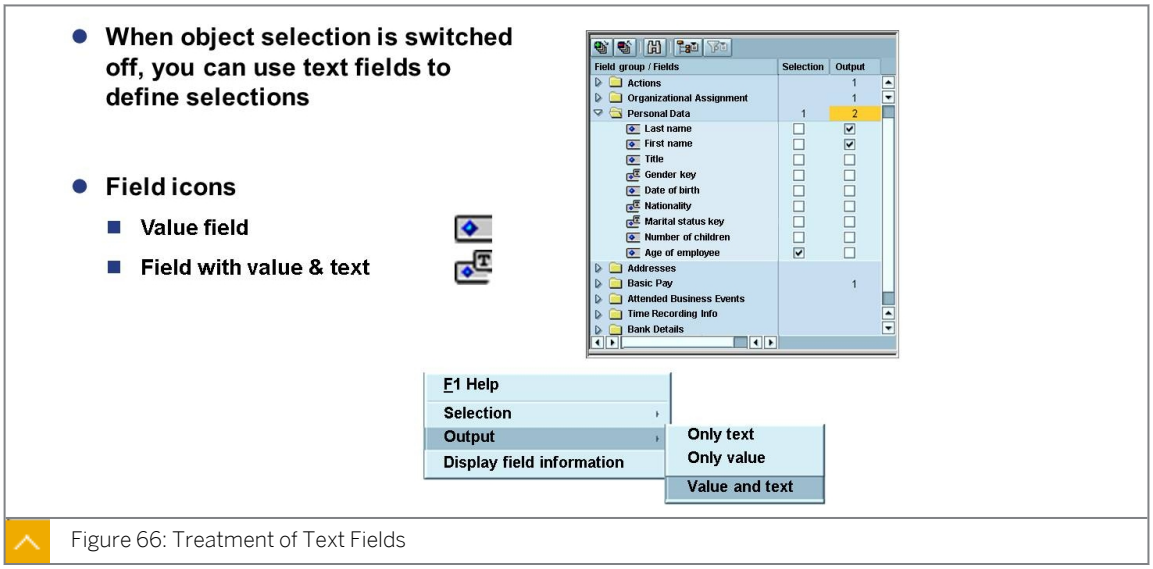


Figure 66: Treatment of Text Fields

If object selection has been switched off and values and texts exist for a field, you can select objects using values or texts. For example, you can select personnel area Frankfurt instead of personnel area 1000.

Note:
The absence of the *Hit List* function and its output field indicates that object selection is switched off.

You can treat the text fields in the following ways:

- Include user-specific settings for using text fields
- Override settings for field selection

For the output, you can always use the value and the text, when available.

You can choose a selection or output field by using the following methods:

- Select using *Drag and Drop* → *User setting*
- Select using *Checkboxes* → *User setting*
- Select using the context menu and choose between *Value, Text or Value*, and *Text*

Ad Hoc Query Selection Options

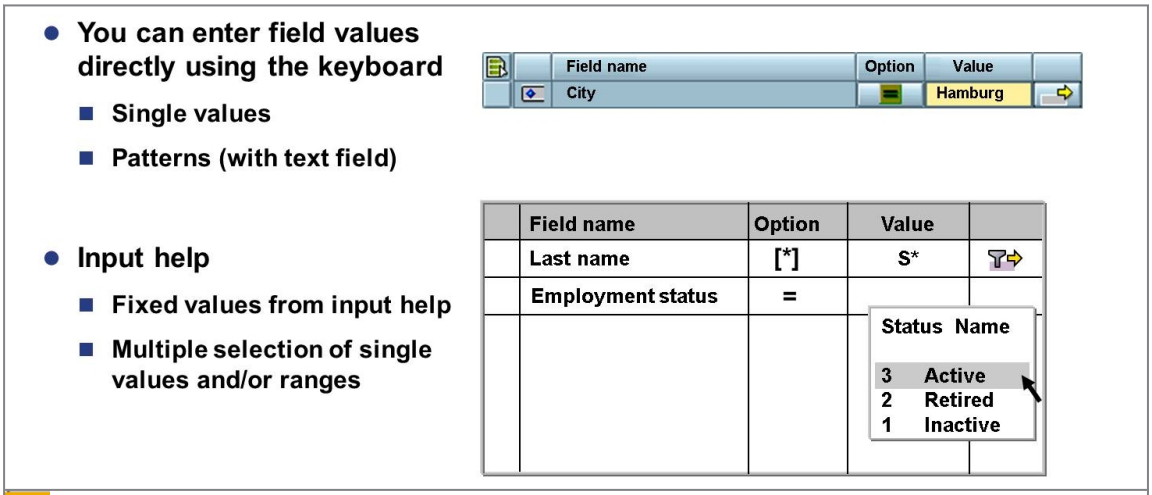


Figure 67: Entering Selection Options and Values

To restrict selection, you enter values and, if necessary, select options for the selection criteria. You select the required selection option from input help. You can enter values directly or determine them using standard input help. Input help enables you to select an input value or use multiple selections to enter any required number of single values or intervals.

The values that you can enter depend on the type of *selection* field, such as numeric, alphanumeric, and date. You can also use patterns as values. For example, if you want to find all of the employees whose names begin with S, enter S* as your value.

Editing of Selected Set of Objects

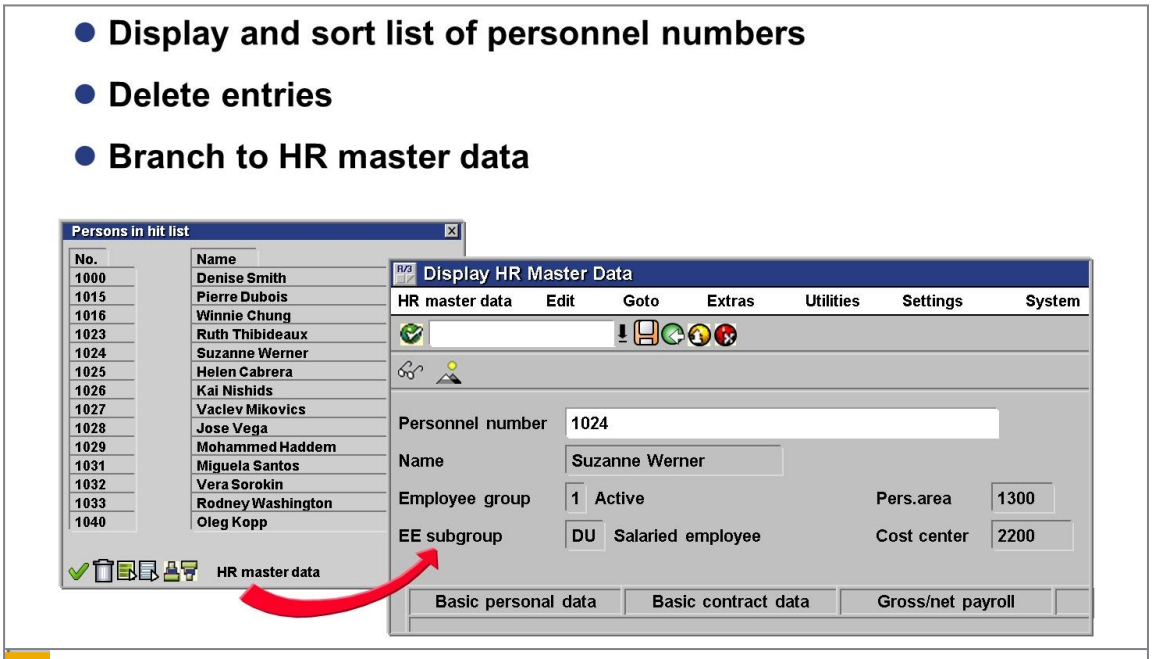


Figure 68: Editing the Selected Set of Objects

The result of each selection is a set of objects, such as persons or business events, for which you can output data.

You can also use the following editing options for each object set:

- Output the selected objects in a list.
- Sort the list.
- Remove specific objects from the list, if you do not want to output data for those objects.

Use pushbuttons to branch directly to the following data:

- HR master data for a set of persons.
- Applicant master data for a set of applicants.
- Detail maintenance for other sets of objects.

Selection Using Organizational Structure

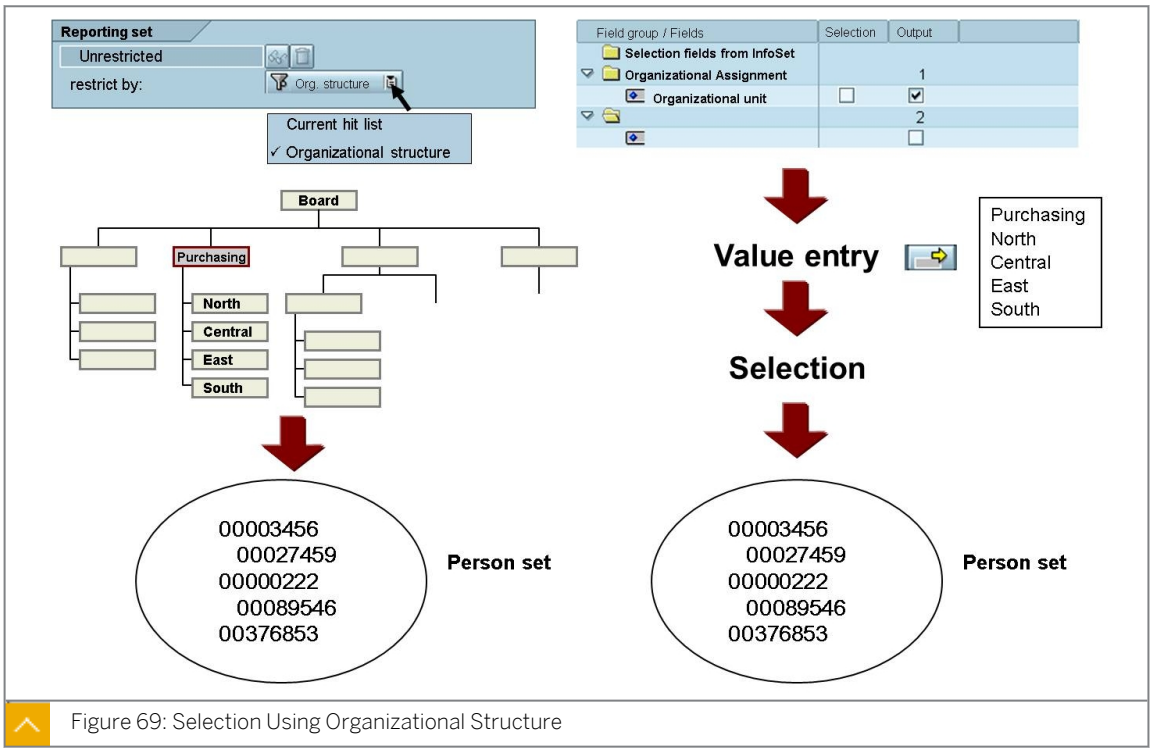


Figure 69: Selection Using Organizational Structure

Ad Hoc Queries are often required to report on employee data from one or more organizational units. To do this, you can select persons using the organizational structure if the InfoSets are based on the logical database PNPCE.

To display the organizational structure, use the *Reporting Set* pushbutton. Choose Persons along organizational structure, then choose the filter icon. You can select the organizational units you require from the overview tree that appears.

When you confirm your selection, the persons who belong to the organizational units are selected immediately. These persons are written to Ad Hoc Query as a reporting set.

If you make your selection using the organizational structure, the system takes the specified reporting period into account and uses the current plan version.

Note:
If you use the organizational structure to select a higher-level organizational unit, the selection includes all of the persons who belong to the selected organizational unit or one of the lower-level organizational units. To achieve the same result, you must use the *Organizational Unit Selection* field and specify all the organizational units explicitly using multiple selections.

You can switch off object selection and work in Basic Mode by choosing *Extras* → *Switch Off Object Selection.* This gives you the advantage of being able to use all basic mode functions, such as selections using texts.

The absence of the *Hit List* function and its output field indicates that object selection is switched off.

Note:
The disadvantage of switching off object selection is that you no longer benefit from improved performance (fast selection routine for persons and personnel planning objects). Furthermore, you cannot restrict the reporting set when object selection is switched off.

LESSON SUMMARY
You should now be able to:

- Create queries by using Ad Hoc Query

Unit 5
Lesson 3

Creating Complex Queries with Ad Hoc Query

LESSON OVERVIEW

This lesson explains how to define complex queries using Ad Hoc Query.

Business Example

You need to define reports with complex queries that are not available as standard reports. For this reason, you require the following knowledge:

- An understanding of complex queries
- An understanding of time constraints
- An understanding of reusing queries

LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Create complex queries with additional options in Ad Hoc Query

Complex Queries

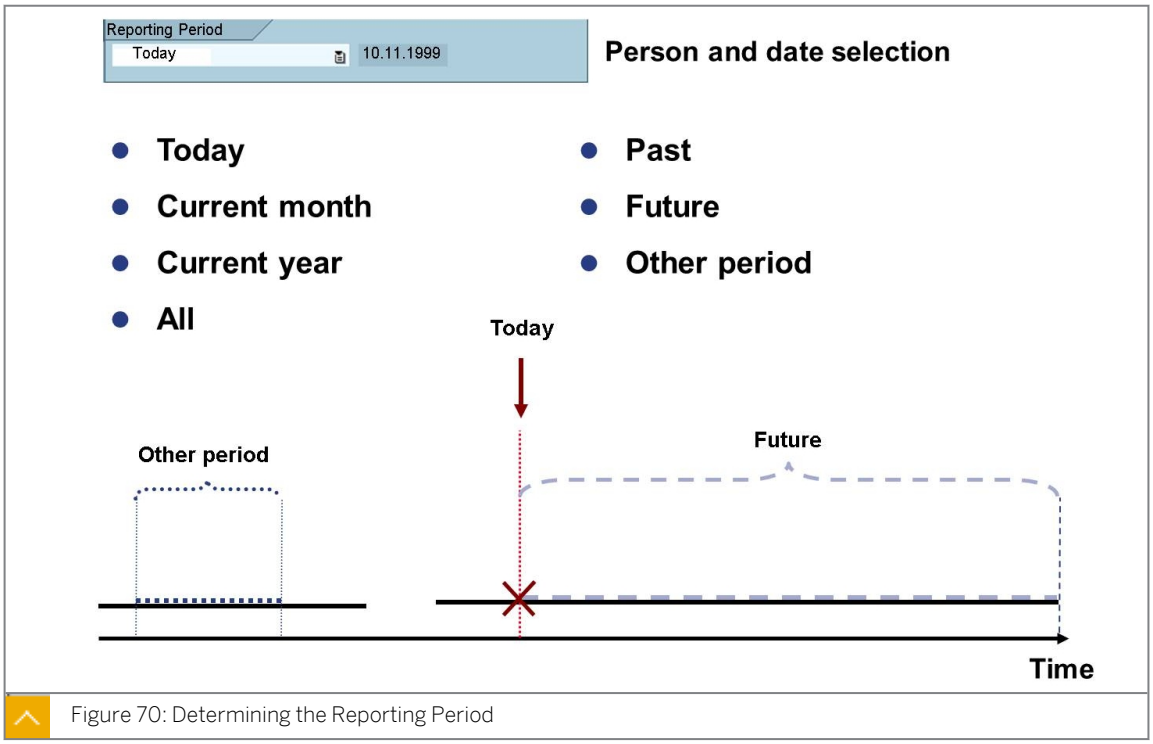


Figure 70: Determining the Reporting Period

The reporting period enables you to determine the period from which objects are retrieved. The system searches for objects with valid infotype records that meet the selection criterion in the period you specified.

The reporting period also affects data output (persons and data selection period). You can separate these time periods on the selection screen, if required. You can create complex queries by adding additional reporting criteria. You can also run statistical reports, for example, the number of people who live in a city.

The following examples show how to determine the reporting period:

- If you want to determine which employees belong to *Personnel Area* 1000 today, use *Today* as your reporting period. *Today* is the system date.
- If you want to determine which employees belonged to *Personnel Area* 1000 in 1995, use *Other Period* to enter **`January 1, 1995`** as the start date and **`December 31, 1995`** as the end date.
- If you want to determine which employees belong to *Personnel Area 1000* in the current month, use *Current Month*.

Hint:
The system always selects all objects for which a valid record exists at any point within the reporting period. For example, if you report on an entire year, the system selects employees who belonged to organizational unit 1000 for at least one day during that year.

Time Constraints

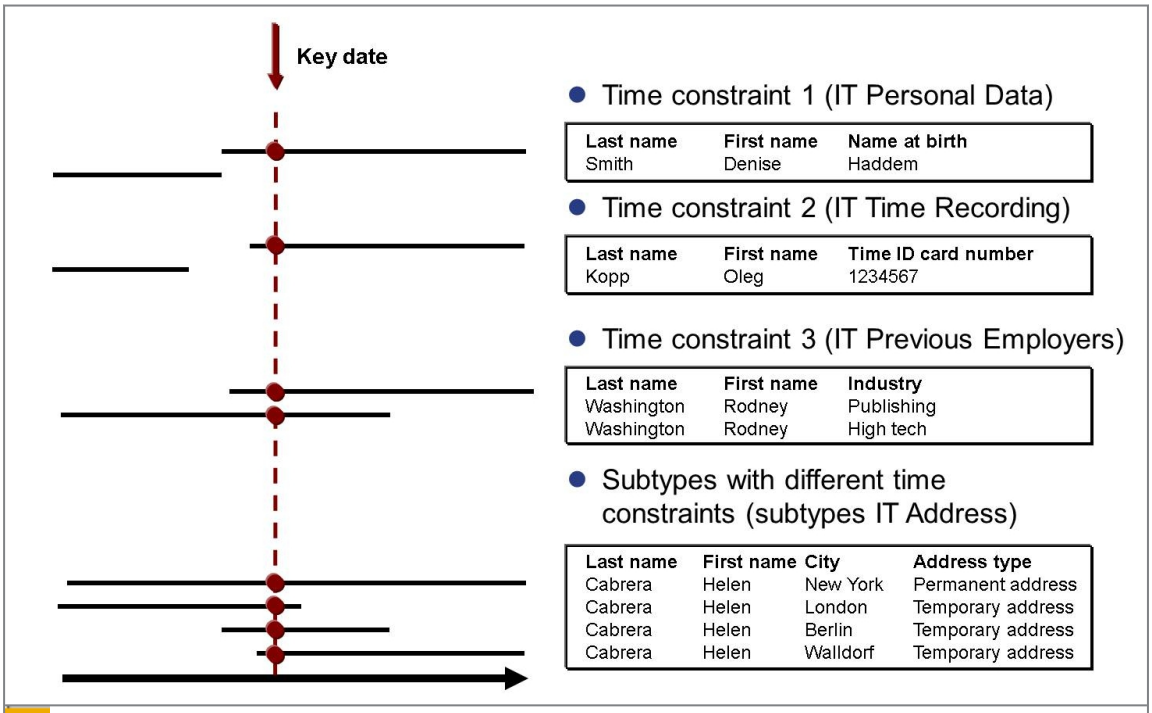


Figure 71: Time Constraints and Data Output

The time constraint of an infotype affects the contents of the output list. When you make a selection, the system determines whether there are any objects that meet the selection criterion during the reporting period.

When you execute output, the system outputs all the valid records that exist for the selected objects. If you report on data for a key date, different numbers of records are output depending on the time constraint specified for the infotype and possibly its subtypes.

Infotype time constraints include the following reporting results:

Time constraint 1:

One row is output per object because the system always contains just one valid infotype record (for example, infotype 0002 *Personal Data*).

Time constraint 2:

One row is output per object because the system can only contain one valid infotype record (for example, infotype 0050 *Time Recording Info*).

Time constraint 3:

The system can contain several valid infotype records at the same time. For this reason, the number of valid records determines the number of Rows that are output for each object (for example, infotype *0023 Other/Previous Employers*).

Subtypes with different time constraints:

If an infotype has subtypes, the time constraints for the subtypes can determine that different number of records exist for each subtype. For this reason, the number of records that exist determines the number of rows that are output for each object.

For example, you select all the employees who live in New York. Your selection lists all of the persons who reside in New York. If you then include the temporary residence for employees, a row is output for each valid temporary residence; for example, the permanent residence of New York (subtype with time constraint 1) and the temporary residences of London, Berlin, and Walldorf (subtype with time constraint 3).

Reuse of Queries

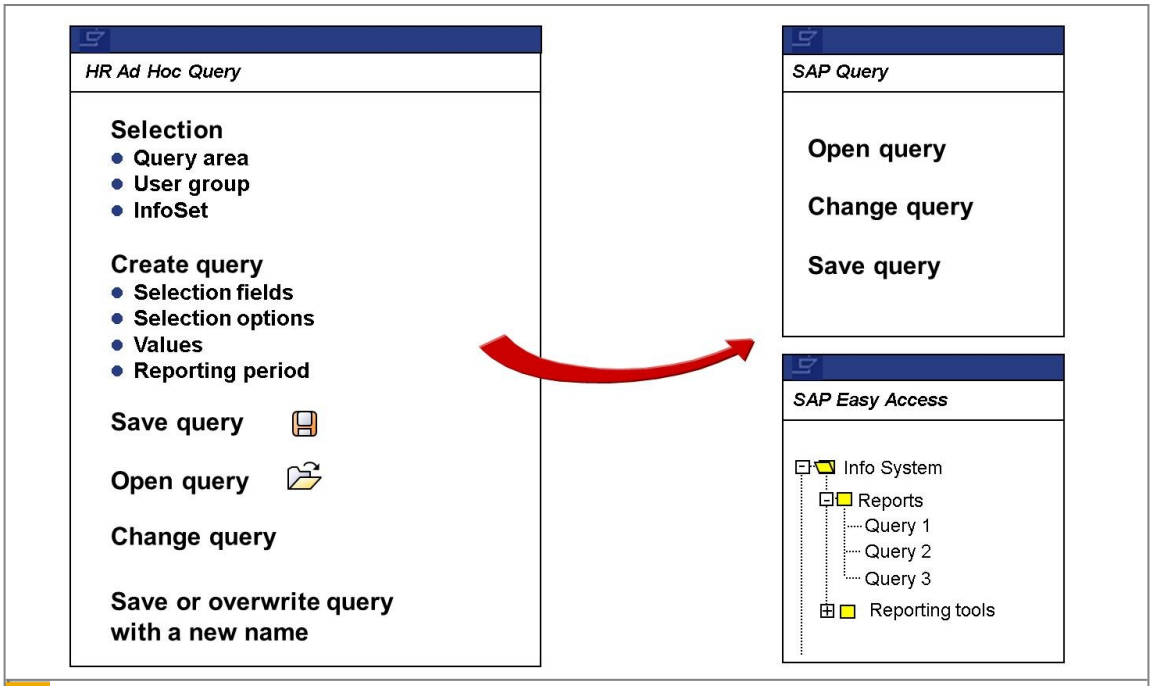


Figure 72: Reusing Queries

When you create queries, you can switch between query areas, user groups, and InfoSets. If you are assigned to a user group, you can save queries. The query is automatically available to all users who belong to the same user group.

If you often perform reporting using the same selection criteria but different values, you are advised to save queries without specifying values. Do not enter data in the value and option fields before saving.

If you often perform reporting using the same selection criteria and the same values, you are advised to save queries with values.

You can access saved queries from the following sources:

Ad Hoc Query:

If you access saved queries from Ad Hoc Query, you can execute, change, or save them in their changed form, or with a new name.

SAP Query:

SAP Query enables you to continue editing saved queries. You are advised to continue editing in SAP Query if you want to use particular output functions in SAP Query, such as summation levels or colors in the output list.

Menus:

You can access saved queries from role menus assigned to users.

Caution:
The technical name of a query must not exceed 14 characters, and must not contain any special characters with the exception of underscores and hyphens. For example, queries that contain a period can be saved but cannot be accessed again.

LESSON SUMMARY

You should now be able to:

- Create complex queries with additional options in Ad Hoc Query

Unit 5
Lesson 4

Formatting Report Output

LESSON OVERVIEW

This lesson explains how to define simple queries using Ad Hoc Query.

Business Example

You often need to define your own reports with enhanced reporting output results. For this reason, you require the following knowledge:

- An understanding of set operations
- An understanding of the various Ad Hoc Query options available to create reports
- An understanding of the InfoSets required to work with Ad Hoc Query

LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Create reports with enhanced reporting output results

Data Output

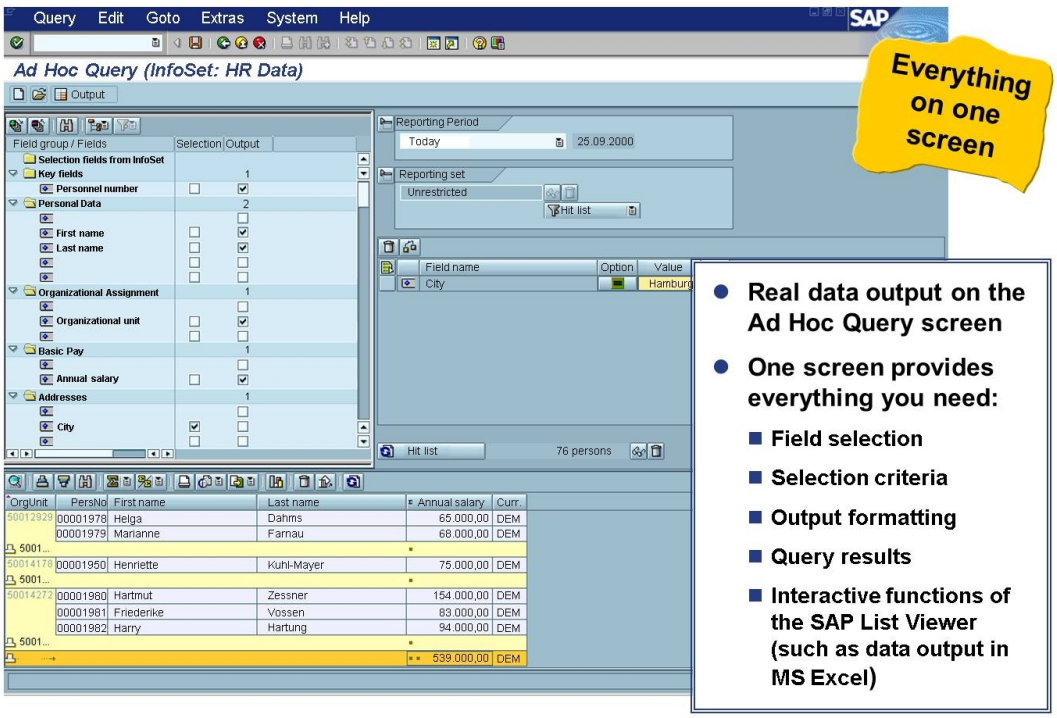


Figure 73: Data Output on the Ad Hoc Query Screen

SAP includes an Ad Hoc Query screen that allows you to define and output data as per your requirements.

The *Ad Hoc Query* screen provides the SAP List Viewer that helps you to create the required reports. The lower part of the *Ad Hoc Query* screen contains a preview of output in the SAP List Viewer. It enables you to use sample data to gain an impression of the appearance of the output list.

The *Refresh* function enables you to replace the sample data with the real data. The data is output to the SAP List Viewer on the *Ad Hoc Query* screen. This means that the definition and result of a query are both included in a single screen.

After you have output the real data, you can use the following SAP List Viewer functions on the Ad Hoc Query screen*:*

- Search for entries
- Calculate totals and subtotals
- Display the output list in Excel and then use all Excel functions
- Use the SAP List Viewer export and display options

Note:
For more information about the functions of the SAP List Viewer, refer to the SAP Library. To access the SAP Library, go to *Getting Started → Working with Tools and Functions → Working with Lists → Sap List Viewer for Sap GUI.*

Definition and Formatting of Output

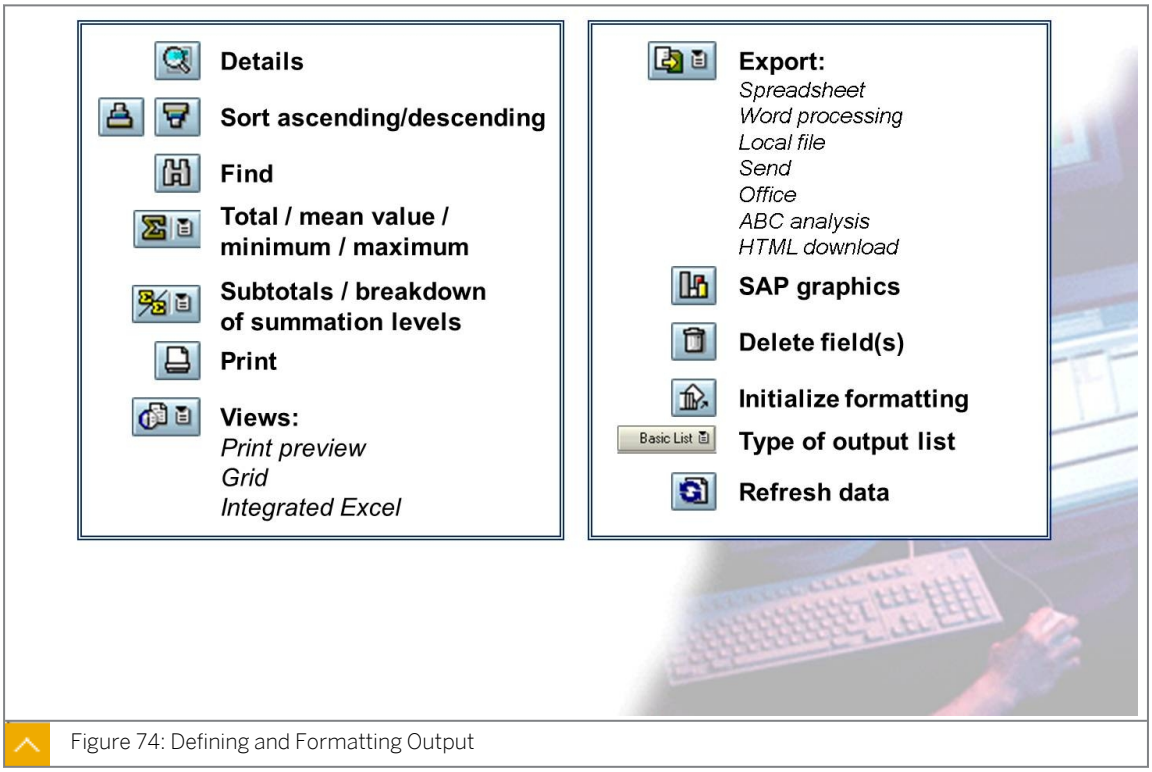


Figure 74: Defining and Formatting Output

The output preview displays the layout of the output list before data is finally output. It also enables you to format the output list.

You can perform the following tasks once the output list is formatted:

- Sort the list by one or more columns.
- Calculate totals for numeric columns in basic lists and calculate subtotals by using specific criteria (non-numeric columns).
- Delete all output fields at once.
- Initialize formatting.
- Determine the position of the currency column in basic lists or hide it completely.

The context menu for ranked lists and statistics enables you to determine whether additional columns, such as mean value, share in %, and total number, are output.

Types of Output

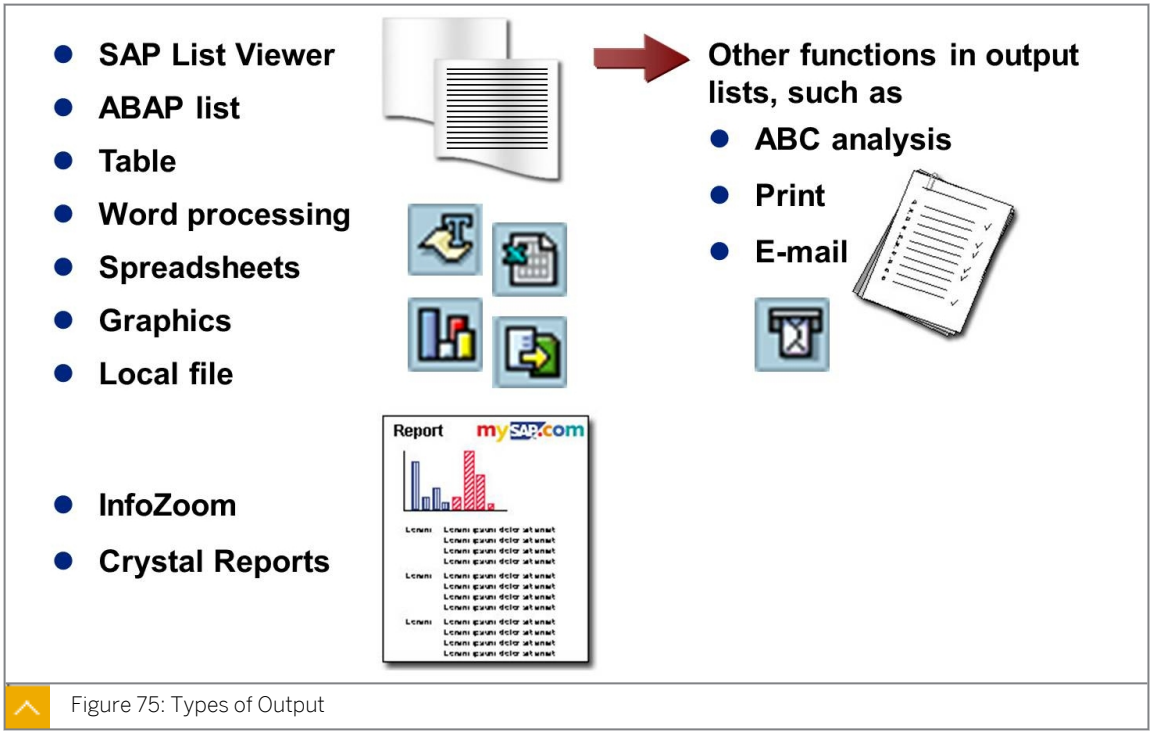


Figure 75: Types of Output

You can select the type of output, which determines how data is displayed when output. You can choose from various types of list output and export functions. For example, you can output data for spreadsheets. In this case, a list is not output to the screen. Instead, the report is copied to a file that you can then edit by using a spreadsheet program.

Output and Export Settings

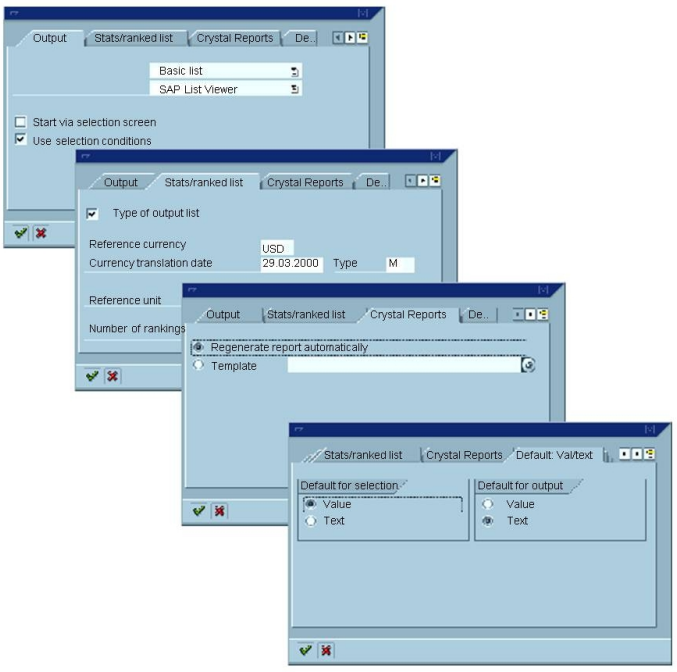


Figure 76: Settings for Output and Export

To specify various output and export settings in a single dialog box, choose *Edit → Settings*.

You can specify the following settings:

- Select the type of output list, such as basic list, ranked list, or statistics.
- Start a query through the standard selection screen of the logical database.
- Use selection conditions for output.
- Reference the currency and counter.
- Export to Crystal Reports.
- Specify field selection as a value or a text.

You can use the following tab pages to specify various output and export settings:

Output tab page:

On the *Output* tab page, you can select the type of output list (such as basic list, statistics, and ranked list) and the type of output (such as standard list, word processing, and spreadsheet). You can also determine whether the query is started through a selection screen. Ad Hoc Query uses the SAP List Viewer as the standard type of output.

Stats/Ranked List tab page:

On the *Stats/ranked list* tab page, you can determine the reference currency that is used to translate currency fields and the reference unit that is used to translate units of measurement. You can also specify the number of lines included in a ranked list.

Crystal Reports tab page:

On the *Crystal Reports* tab page, you can determine how data is exported to Crystal Reports if Crystal Reports is started directly from InfoSet Query. You can also create a

Crystal Report each time data is exported. Alternatively, you can export data to an existing Crystal Report on your local PC.

Default: Val/Text tab page:

On the *Default: Val/Text* tab page, you can determine whether the value or text is used when a field is selected by drag and drop or by checkbox. You can override these defaults by using the context menu to select a field.

Output List

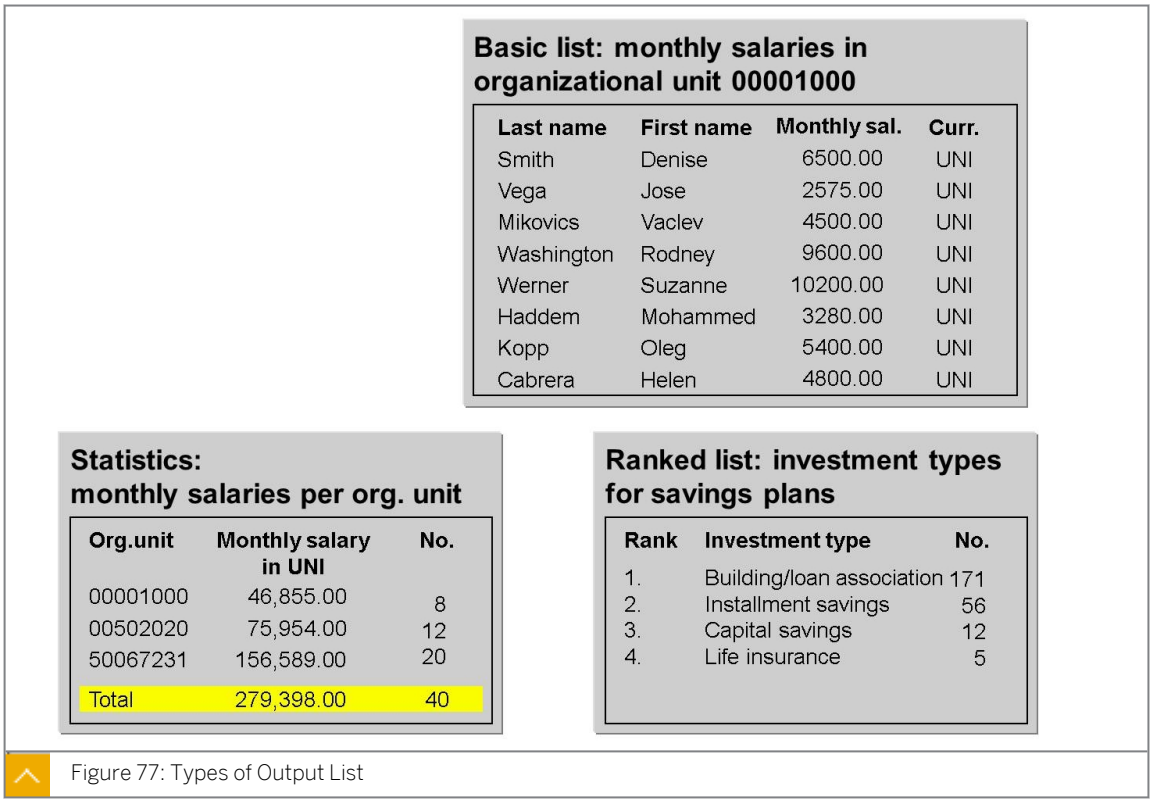


Figure 77: Types of Output List

Output lists are of the following types:

- Basic list
- Statistics
- Ranked list

While basic lists enable you to output detailed overviews, statistics and ranked lists enable you to output aggregated data.

Output List – Examples

The following table shows examples of the different types of output lists:

Table 4: Output List

Output List	Example
Basic list	You want to output an overview of monthly salaries received by employees in an organizational unit. To do so, you use the required organizational unit as a selection criterion and output the name and monthly salary. You select basic list as your output type. When the output is defined in this way, the currency field is output automatically.
Statistics	Instead of an overview of individual salaries, you want to output monthly salary totals for each organizational unit. In this case, you use the required organizational units as selection criteria, and the organizational unit and monthly salary as output fields. You select statistics as your output type. The total of monthly salaries is output for each organizational unit. The number of values included in the total is output if you have defined output accordingly. A totals row is also output for each statistic. In this example, it contains the total of monthly salaries, and the total number of values included.
Ranked list	You want to determine the investment types that are most frequently selected as savings plans at your enterprise. To do so, you select all of the employees at your enterprise, and ranked list as your type of output list. You use the investment type as the only output field. The output list contains the investment types, which are sorted by the number of employees who selected the investment types. The number of rows output in ranked lists is limited. The rank and number columns are output automatically.

Restriction of the Reporting Set

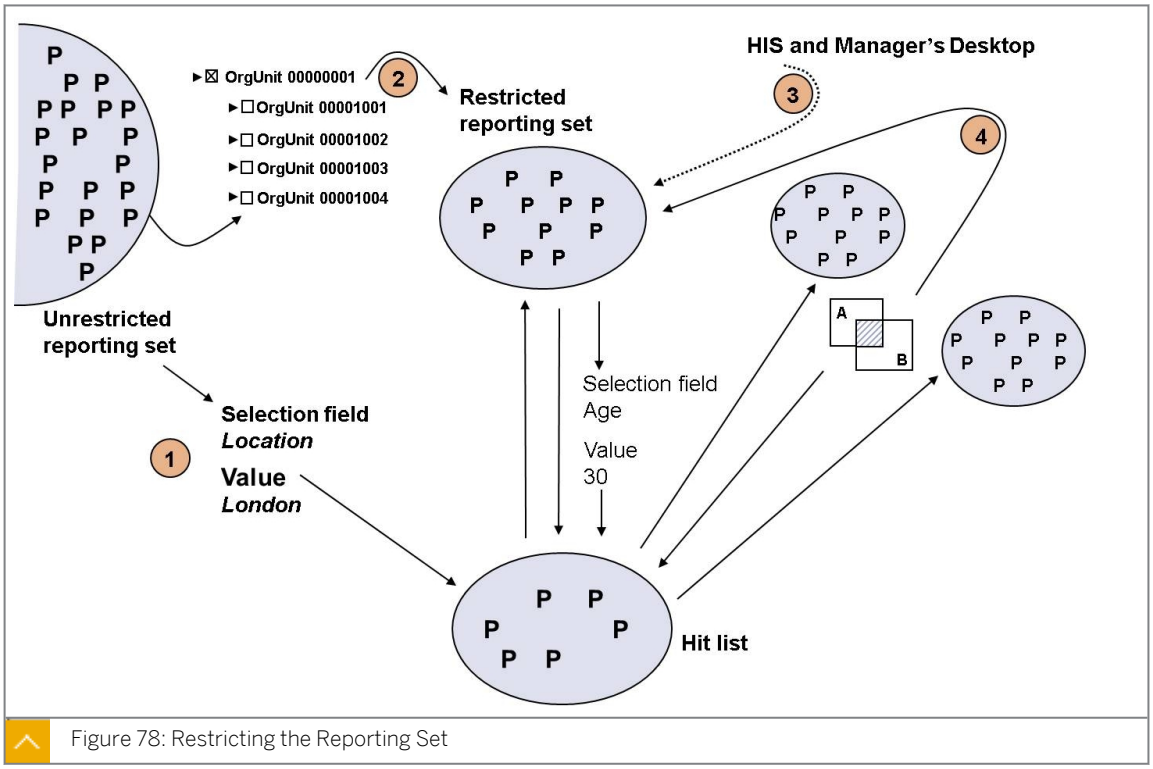


Figure 78: Restricting the Reporting Set

You often require reports for a specific set of objects, such as the employees assigned to an organizational unit or a group of persons who meet certain conditions. If you do not restrict the reporting set, selections are performed for all of the objects of an object type that are stored in the system. You can include only the required set of objects in your reports by restricting the reporting set as appropriate.

You can use one of the following restrictions for sets of persons:

- The current hit list that you obtained by making a specific selection
- A set of persons that you selected by using the organizational structure
- A set of persons that you selected in HIS or Manager's Desktop
- A set of persons that you determined by using set operations

You can define further restrictions for the reporting set of persons. For more information, access Customizing for the Human Resources Information System and read the section on *Selection IDs*.

Set Operations

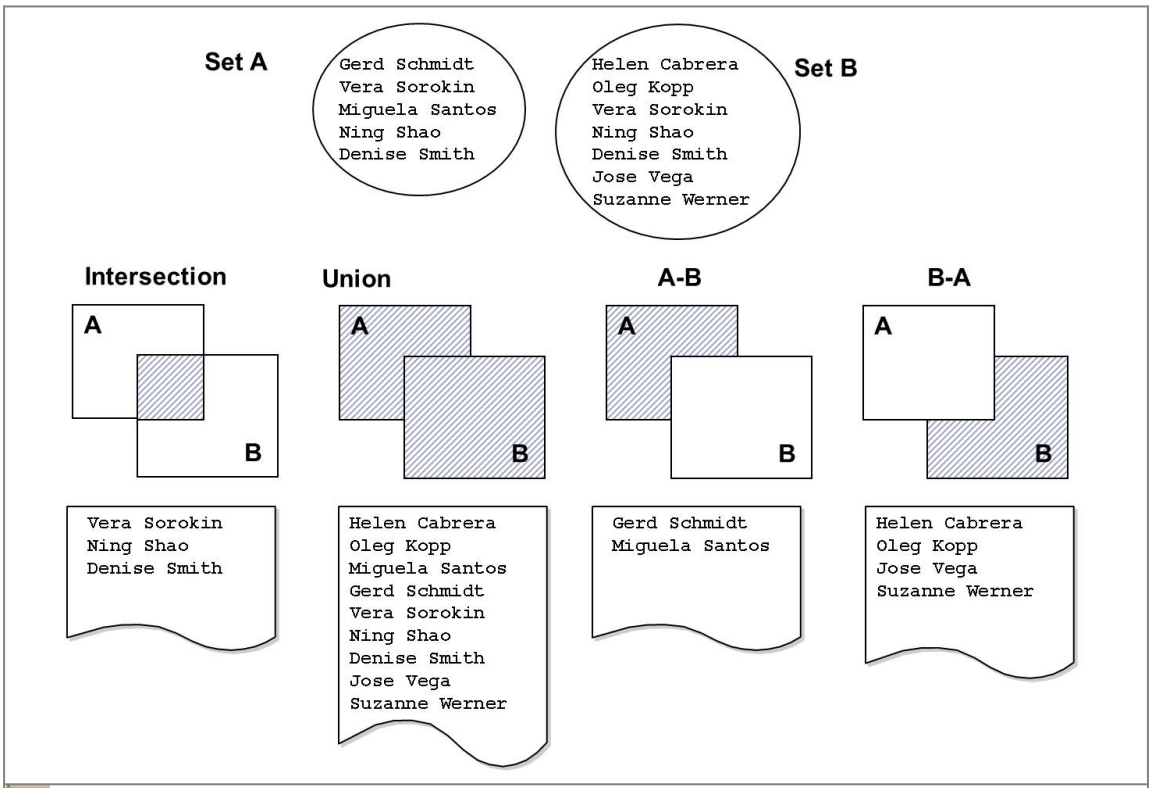


Figure 79: Set Operations

The *Set Operations* tab page enables you to use hit lists from more than one selection to perform set operations.

A set operation involves the following steps:

1. Make a selection.
2. Copy the hit list to set A.
3. Make a second selection.
4. Copy the second hit list to set B.

You can then perform the following set operations:

- Create intersections
- Create unions
- Add sets
- Subtract sets

The resulting set can be used for the following purposes:

- For further set operations
- As a precondition for further selections
- As a hit list, and, therefore, as the basis for data output

Examples of how set operations can be used are as follows:

- You can make negative selections. For example, if you want to find employees for whom a specific infotype record, such as temporary residence, does not exist, you need to perform set operations.
- You can make combinations of person sets that have been selected by using different selection criteria, and for whom data must be output in a joint list.

Personnel Planning

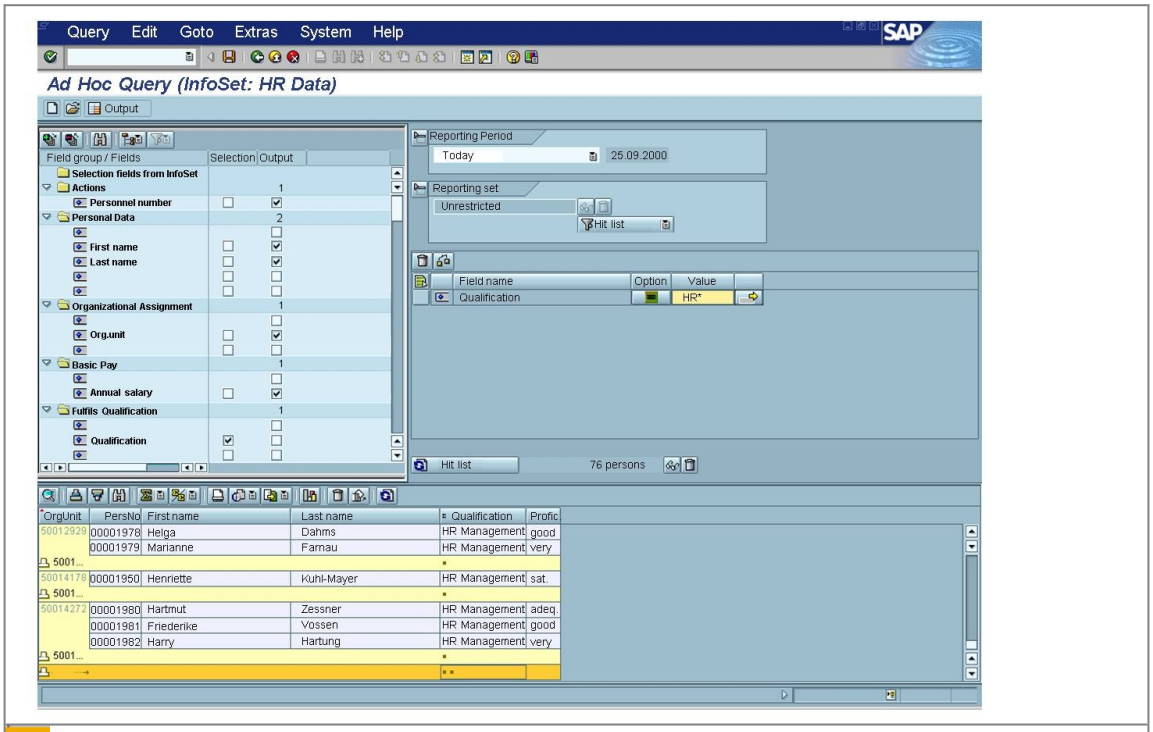


Figure 80: Reporting on Data from Personnel Planning I

You can use data from personnel planning as selection fields to define various reports.

You can now use the infotypes of related objects as selection and output fields for persons and personnel planning objects, for example, to find persons with specific qualifications. The prerequisite for this is an existing InfoSet based on logical database PNP or PNPCE (HR master data). In this example, it would also need the added Object Type Qualification Fulfils to give you the requisite data.

Reporting on Data from Personnel Planning

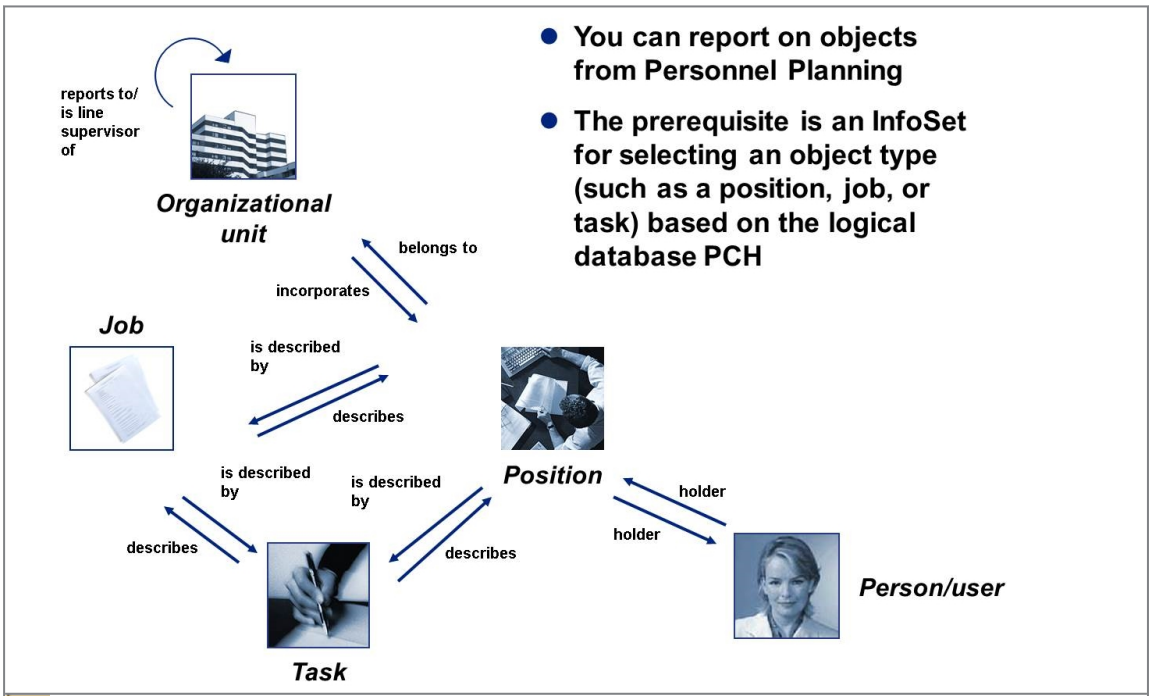


Figure 81: Reporting on Data from Personnel Planning

In earlier releases, you could only use Ad Hoc Query to select sets of persons. You could output any data from Personnel Administration for the selected persons, as well as data from infotypes of related personnel planning objects. You could not use personnel planning data to make selections.

With the use of an InfoSet specially created for selecting a specific object type, such as courses (based on PCH), you can now select personnel planning objects and report on related objects.

LESSON SUMMARY

You should now be able to:

- Create reports with enhanced reporting output results

Unit 5
Lesson 5

Creating Dashboards

LESSON OVERVIEW

This lesson provides an introduction to HCM dashboards.

Business Example

As the HR Analyst, you are responsible for the setup and generation of various reports. You have received a request for an HCM Dashboard report and must familiarize yourself with dashboards. For this reason, you require the following knowledge:

- An understanding of HCM Dashboards

LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Create a dashboard based on an Ad Hoc query

BI Dashboards

Translating HCM Data into Business Information

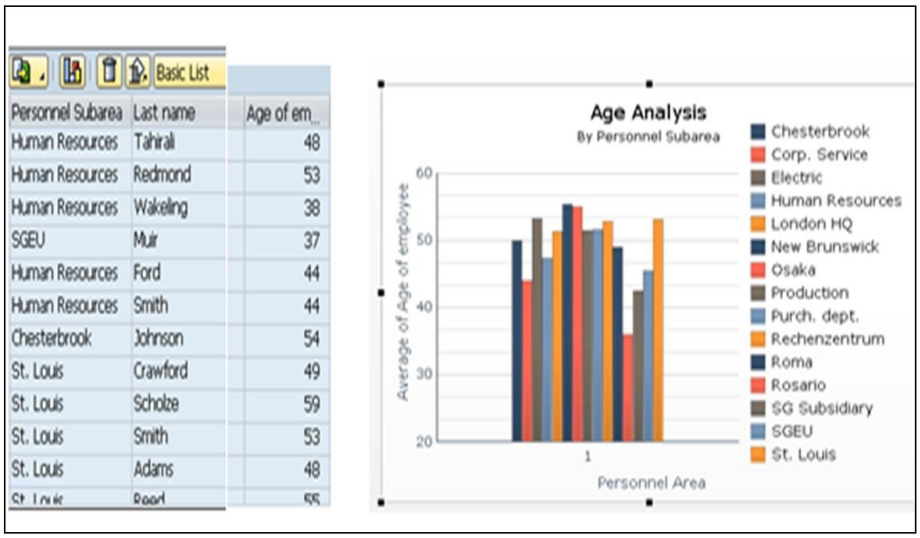


Figure 82: Dashboard

Introduction to Dashboards

Dashboards are used to present data in charts, graphs and other visual devices such as maps. This is known as visualization. The *SAP BI* dashboard application is called *SAP Business Objects Dashboard Designer*, previously known as *Xcelsius*. Dashboards are designed to be interactive, allowing the user to change the emphasis of the display. For instance a drop-down

list could be included next to a chart of average age by personnel subarea, to allow the selection of a different personnel area.

Dashboard Designer includes the facility to build ‘What if’ scenarios. ‘What if’ scenarios are based on additional ranges of data representing forecast or modeled data.

Dashboards are part of the roadmap for HCM reporting and can be seen as content in *Manager Self Service*. Web based dashboards delivered using mobile applications can be created using *SAP BusinessObjects Design Studio.* These dashboards do not support ‘what if’ scenarios.

Dashboards for HCM

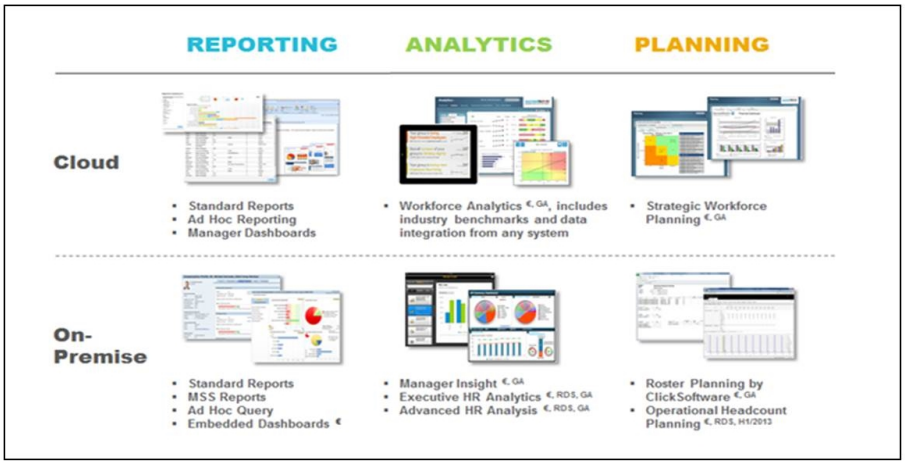


Figure 83: Dashboards for HCM

Reporting

Standard and ad hoc reports represent transactional level data, and display data in rows in a table which can be sorted, filtered, counted and summed. Standard reports are developed either using *ABAP* or were built using *Ad hoc Queries*. Users can create their own reports by using the ad hoc query tool to retrieve HCM data. Building such queries allows you to be very specific about the data you want to see. Dashboards are an example of visualizations. They are reports that do not show row by row data, just the key data plotted in charts and graphs. They typically contain sliders and controls to allow interaction. You can change the emphasis of the data; for instance switching to show a different personnel area or cost center. Analytic reporting is all about numbers of people. Dashboards allow you to spot trends and to offer insights into the data. Some Analytic reports are built into interfaces for managers. Cloud and on-premise offer standard reports. Dashboards are optional and will require licenses for *BI*.

Analytics

Workforce Analytics is the *Cloud Analytics* solution. *Manager Insight*, *Executive Analytics*, and *Advanced Analytics* are the on-premise offerings. Analytics is optional and attracts a fee. Analytics offers a library of delivered metrics, industry benchmarks, and HR strategies.

The metric catalog helps with consistency of reporting, standards, and allows benchmarking. The idea is to measure things that matter, for example, KPIs (Key Performance Indicators) aligned to strategic goals. The library supports the HR team who may not be analytically minded or have the skills to complete forecasting.

Analytics will focus on different levels of data depending on who is using it. Executive analytics focuses on higher level KPIs and HCM scenarios. The *on-premise solutions* include specific metrics for Managers.

These tools are optional and help to answer questions such as:

- Are we building talent according to our strategy?
- Will we have the right resources to enter new markets or launch new products?
- Are we building skills to support our strategy?
- Do we have career paths that are strategic and make sense?
- Will we have resources available when we need them?
- Are we able to pay a competitive salary?
- Is our workforce located where our customers and business requirements are?
- Can we outsource certain functions?

Planning tools include the following types:

- Short-term planning: shift, roster, resources
- Mid-term planning: headcount, budgets
- Long-term planning: strategic workforce planning

Dashboard Designer

SAP Business Objects Dashboard Designer (SBO DD) is part of the *SAP BI* suite and can be licensed as a standalone tool or as part of a *BI* bundle. Dashboard design tends to be the task of a reporting analyst who designs and publishes for the business. A dashboard can contain one or many charts, graphs, sliders, gauges or graphics. These are known as components. The components are based on spreadsheet data held in *Dashboard Designer*. This data can be connected to live data sources in the background.

Note:
For further information and full training please refer to the BOX310 Dashboard Designer course.

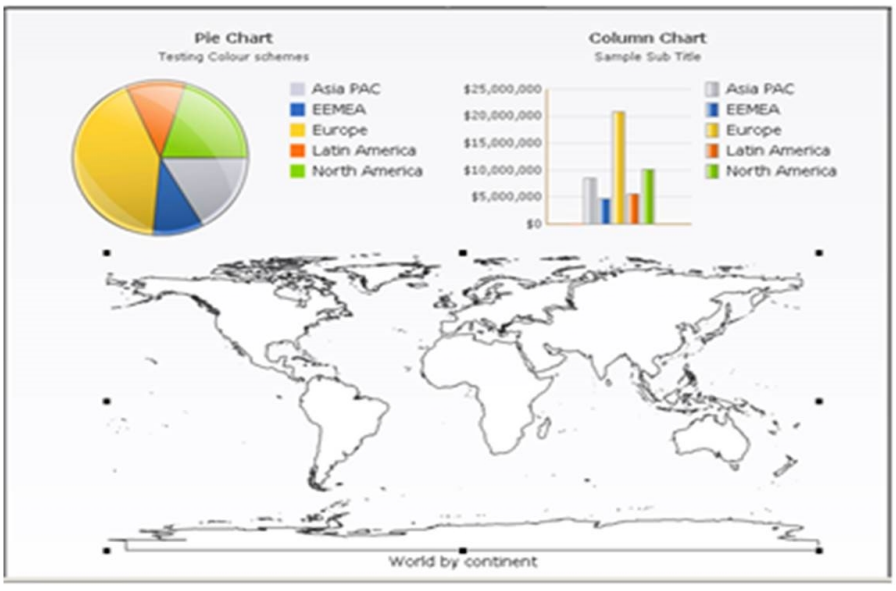


Figure 84: Dashboard Preview

Once designed the Dashboard needs to be previewed or published. By clicking a single toolbar button, your dashboard can be produced as an interactive Flash file (SWF). Other toolbar buttons will produce the *Flash* file and automatically embed that Flash file in a *PowerPoint* presentation slide, *Microsoft Word* document, *Outlook* e-mail message, or an *Adobe PDF* document. Another toolbar button creates the *Flash* file as well as an HTML document and folder structure that will display your Flash file in a Web browser.

Data and Dashboards

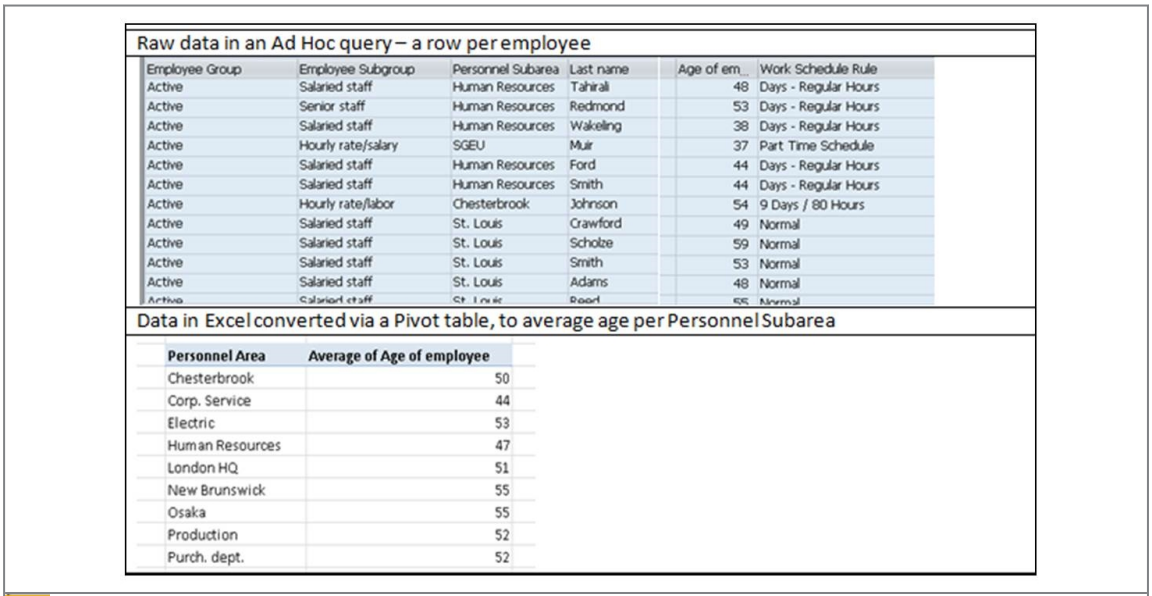
In order to plot data we need to generate numeric data. This isn't present in the table data we export from *Ad Hoc Query*. HCM data extracted from the logical databases generally contains few numbers and those that are present are not measurements but facts such as wage types, age, and so on. *Business Information (BI)* is all about numbers. You need to analyze the transactional data from a row per person and convert it into numbers. Those numbers are held against higher level fields such as employee subgroup, cost center, and so on. Once you have this type of data you can build a dashboard.

Data extraction and Dashboard creation process

By using a pivot table in MS Excel© you can easily extract the numbers you require while retaining the data labels to describe the chart. By carrying out these data manipulations you are converting raw transactional data into business information.

The pivot table counts the number of employees and creates a column or row of data for the results. For example, taking a sum of the number of employees in each personnel subarea, assigned to each work schedule rule, and so on. In the case of the employee age, the sum calculation would be irrelevant and so was overridden in the pivot table settings and the mean average age was stored instead. You may begin with many rows of data, one for each person, but you will end up with higher level data that you can plot.

SAP Business Objects Dashboard Designer Application


Raw data in an Ad Hoc query – a row per employee

Employee Group	Employee Subgroup	Personnel Subarea	Last name	Age of em...	Work Schedule Rule
Active	Salaried staff	Human Resources	Tahirali	48	Days - Regular Hours
Active	Senior staff	Human Resources	Redmond	53	Days - Regular Hours
Active	Salaried staff	Human Resources	Wakeling	38	Days - Regular Hours
Active	Hourly rate/salary	SGEU	Muir	37	Part Time Schedule
Active	Salaried staff	Human Resources	Ford	44	Days - Regular Hours
Active	Salaried staff	Human Resources	Smith	44	Days - Regular Hours
Active	Hourly rate/labor	Chesterbrook	Johnson	54	9 Days / 80 Hours
Active	Salaried staff	St. Louis	Crawford	49	Normal
Active	Salaried staff	St. Louis	Scholze	59	Normal
Active	Salaried staff	St. Louis	Smith	53	Normal
Active	Salaried staff	St. Louis	Adams	48	Normal

Data in Excel converted via a Pivot table, to average age per Personnel Subarea

Personnel Area	Average of Age of employee
Chesterbrook	50
Corp. Service	44
Electric	53
Human Resources	47
London HQ	51
New Brunswick	55
Osaka	55
Production	52
Purch. dept.	52

Figure 85: Dashboard Data Query

SAP Business Objects Dashboard Designer (SBO DD) is used to produce a screen (canvas) comprised of one or more components. A standard toolbox of components is provided as part of *Dashboard Designer*.

The types of components include the following:

Charts

Used for plotting the data

Containers

Tabs and boxes for organizing the components

Selectors

Selectors include list boxes, buttons, and drop down lists. Selectors allow you to interact with and change the data that is displayed.

Single Values

Single values are sliders and dials used in ‘what If’ scenarios. For example: What if we used a different set of data with higher or lower values?

Maps and Backgrounds

Used for design and emphasis

Text

Used for labeling and clarity

Components are dragged onto the canvas to create a dashboard. Elements of each component are then mapped to data from the data source. The data source is either entered directly or imported from Excel. The components are mapped to a field or range of data using the properties of that component. Formatting of all component types is carried out using the properties panel. The panel will contain different controls for each component type.

Properties are grouped on separate tabs as follows:

General

Used to map or enter the data

Insertion

Used if clicking the component should insert something in the Dashboard

Behavior

Used to format the component

Appearance

Used to control layout, text, color, and axes, for example, in a chart.

Alerts

Used to enable the use of color to warn of data breaching set criteria. This is similar to conditional formatting in MS Excel.

Different components will attract different properties. Some properties are further divided using sub-tabs.

Once developed you can preview how the finished dashboard will behave when published as a flash file. This publishing adds things like tooltips and animation. For example, as the chart appears the ranges will build from the bottom up.

To create a Dashboard from HCM data, proceed as follows:

1. Build an Ad Hoc query that includes the data you wish to visualize.
2. Export or copy and paste the data to an Excel spreadsheet.

3. Perform manipulations in Excel to produce the numeric data.
4. Create a new dashboard in SBO Dashboard Designer.
5. Import the spreadsheet as your data source.
6. Add any further data ranges for use in scenarios.
7. Build your dashboard.

LESSON SUMMARY

You should now be able to:

- Create a dashboard based on an Ad Hoc query

Learning Assessment

1. Ad Hoc Query is a tool that reports on data from Human Resources with the required output fields.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

2. Which of the following user groups are used for individual application components?

   Choose the correct answers.

   ☐ **A** /SAPQUERY/H0 for Compensation Management

   ☐ **B** /SAPQUERY/H1 for Training

   ☐ **C** /SAPQUERY/H2 for Personnel Administration

   ☐ **D** /SAPQUERY/H4 for Recruitment

3. On the Ad Hoc Query screen, field groups and fields of the current InfoSet are displayed on the left of the screen.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

4. The logical database related to Time Management is _____.

   Choose the correct answer.

   ☐ **A** PNPCE

   ☐ **B** PCH

   ☐ **C** PAP

5. The InfoSet based on the logical database PAP enables you to use Ad Hoc Query to select applicants.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

6. Which time constraint can contain several valid infotype records at the same time?

   Choose the correct answer.

   ☐ A Time constraint 1

   ☐ B Time constraint 2

   ☐ C Time constraint 3

7. You can execute and change the saved queries that are accessed from Ad Hoc Query if the Change Lock has not been set.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

8. Set operations are suitable for combinations of person sets that have been selected using different selection criteria, and for whom data must be output in a joint list.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

9. Which tab page enables you to use hit lists from more than one selection to perform set operations?

   Choose the correct answer.

   ☐ A Set Operations tab page

   ☐ B Output tab page

   ☐ C SAP Crystal Reports tab page

   ☐ D Selection tab page

Learning Assessment - Answers

1. Ad Hoc Query is a tool that reports on data from Human Resources with the required output fields.

   Determine whether this statement is true or false.

   [X] True

   [ ] False

2. Which of the following user groups are used for individual application components?

   Choose the correct answers.

   [X] A /SAPQUERY/H0 for Compensation Management

   [ ] B /SAPQUERY/H1 for Training

   [X] C /SAPQUERY/H2 for Personnel Administration

   [X] D /SAPQUERY/H4 for Recruitment

3. On the Ad Hoc Query screen, field groups and fields of the current InfoSet are displayed on the left of the screen.

   Determine whether this statement is true or false.

   [X] True

   [ ] False

4. The logical database related to Time Management is _____.

   Choose the correct answer.

   [X] A PNPCE

   [ ] B PCH

   [ ] C PAP

5. The InfoSet based on the logical database PAP enables you to use Ad Hoc Query to select applicants.

   Determine whether this statement is true or false.

   - [X] True
   - [ ] False

6. Which time constraint can contain several valid infotype records at the same time?

   Choose the correct answer.

   - [ ] A Time constraint 1
   - [ ] B Time constraint 2
   - [X] C Time constraint 3

7. You can execute and change the saved queries that are accessed from Ad Hoc Query if the Change Lock has not been set.

   Determine whether this statement is true or false.

   - [X] True
   - [ ] False

8. Set operations are suitable for combinations of person sets that have been selected using different selection criteria, and for whom data must be output in a joint list.

   Determine whether this statement is true or false.

   - [X] True
   - [ ] False

9. Which tab page enables you to use hit lists from more than one selection to perform set operations?

   Choose the correct answer.

   - [X] A Set Operations tab page
   - [ ] B Output tab page
   - [ ] C SAP Crystal Reports tab page
   - [ ] D Selection tab page

UNIT 6 SAP Query

UNIT OBJECTIVES

- Generate a report by using SAP Query
- Execute reports that include specific and local fields using SAP Query

Unit 6
Lesson 1

Creating Queries with SAP Query

LESSON OVERVIEW
This lesson introduces SAP Query and outlines how to create queries using this tool.

Business Example

As the HR Analyst, you need to generate reports using SAP Query. For this reason you require the following knowledge:

- An understanding of SAP Query
- An understanding of how to create queries by using SAP Query

LESSON OBJECTIVES
After completing this lesson, you will be able to:

- Generate a report by using SAP Query

SAP Query Basics

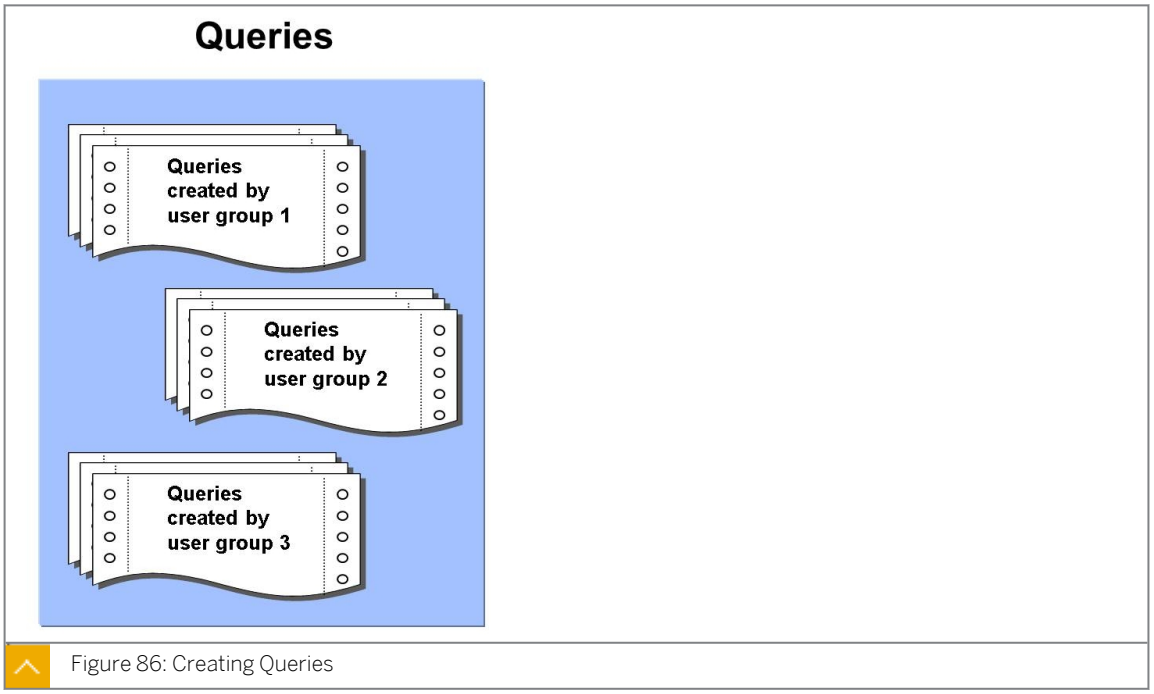


Figure 86: Creating Queries

If you use SAP Query to create queries, you can create one basic list and up to nine statistics or ranked lists for one query, which can be defined using selection and output fields.

When creating queries using HR logical databases, you can use the Line Groups function. This function enables you to group specific lines within multiline basic lists to form line groups.

If infotypes have more than one record, this function ensures that infotype fields that logically belong together are grouped in a logical manner, instead of being output one after the other.

The following table shows an example of different placement of fields from the infotypes with and without Line Groups:

Basic List with Line Groups	Basic List Without Line Groups
Martin Smith	Martin Smith
54333 Musterstadt	54333 Musterstadt
Any Street 4	12456 Anyplace
12456 Anyplace	Any Street 4
Example St. 4	Example Street 4

Field Selection

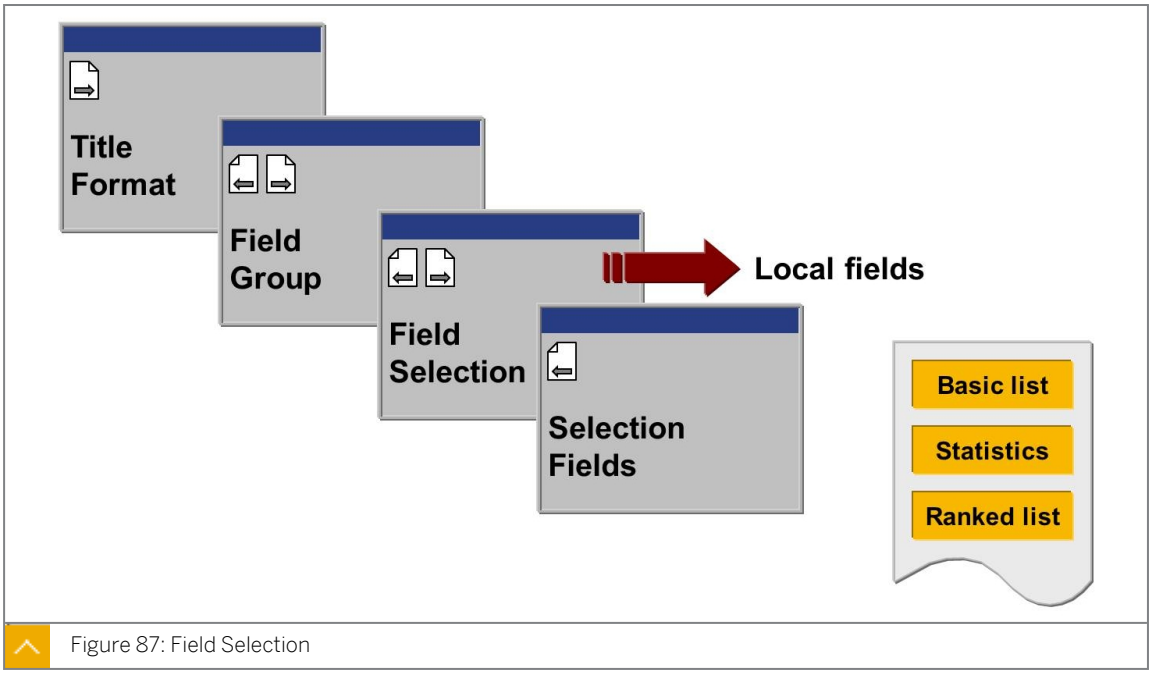


Figure 87: Field Selection

The system guides you through the following sequence of screens for field selection:

1. Title, Format:

   This screen enables you to assign the title of the query. By entering format data, you can determine the page layout. By entering special attributes, you can determine further characteristics for the query such as change lock and output types).

2. Field Group Selection:

   This screen enables you to select the required field groups. InfoSets are divided into field groups, which correspond to infotypes in HR.

3. Field Selection (Output Fields):

This screen enables you to select the data fields required for the field groups selected earlier. If you require local fields, you can define them on this screen.

4. Selection Fields:

   This screen enables you to define selection fields with which you can enter further restrictions on the selection screen.

To Create SAP Queries

1. Define the name of the query.
2. Select an InfoSet.
3. Specify the query title, list format, and design the list.
4. Select the field groups and their fields.
5. Define the layout of the list.

LESSON SUMMARY

You should now be able to:

- Generate a report by using SAP Query

Unit 6
Lesson 2

Modifying SAP Query Reports

LESSON OVERVIEW
This lesson explains how to generate SAP Queries which include control levels, statistics, local fields, and multi-lines.

Business Example

As the HR Analyst, you are responsible for the generation of SAP Queries including control levels, statistics, user defined fields and formats. For this reason, you require the following knowledge:

- An understanding of SAP Query output
- How to set up control levels
- How to include statistics in a report

LESSON OBJECTIVES
After completing this lesson, you will be able to:

- Execute reports that include specific and local fields using SAP Query

SAP Query Output

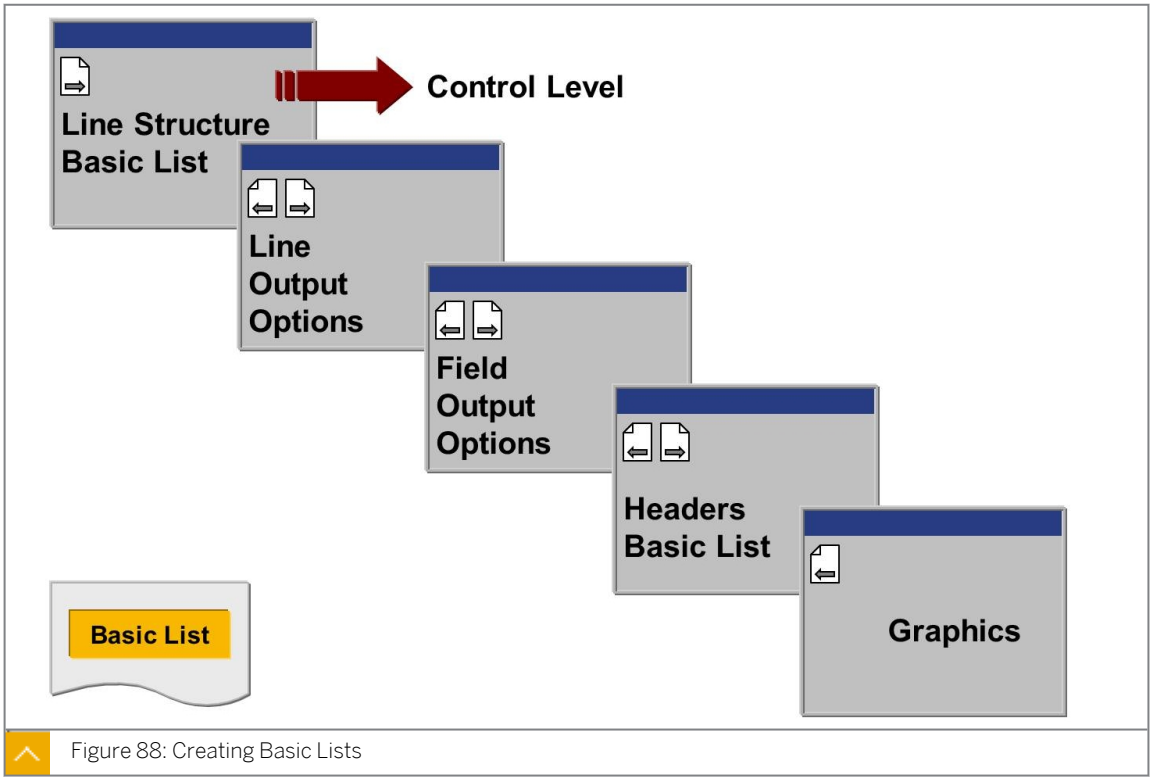


Figure 88: Creating Basic Lists

The system guides you through the following screens for creating a basic list:

1. Basic List Line Structure:

   This screen enables you to arrange fields in single or multiple lines, and determine the field sequence. It also enables you to determine the sort sequence and other global field characteristics.

   Control level processing can be defined for sorted fields. Summation and field counting are possible for each control level.

2. List Line Output Options:

   This screen enables you to determine output options for each line. The appearance of the Output depends on whether another line exists, output for blank lines (before and after a line), page breaks, and output in the page header.

3. Field Output Options:

   This screen enables you to determine output options for each field, such as output length, output position, and output with template (in this case, using an additional *Field Templates* screen).

4. Basic List Header:

   This screen enables you to enter text for the footer and header, and to change the text for column headers.

5. Graphics:

   This screen enables you to determine the graphic type that is used if the list is output as a graphic.

Creation of Control Level Lists

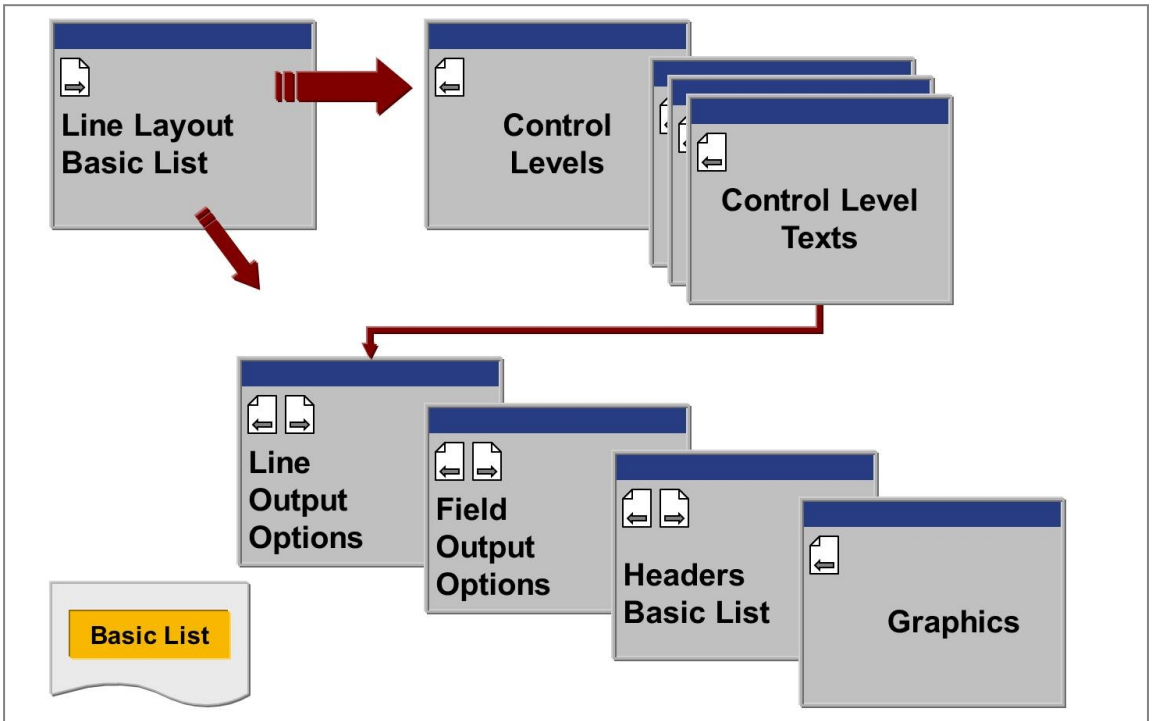


Figure 89: Creating Control Level Lists

If a sort sequence is specified for the line structure, the screen sequence branches to control level definition.

The system guides you through the following screens for creating a control level list:

1. Control Levels

   This screen enables you to determine the following attributes for each control level:

   - Ascending or descending control level sorting
   - Use of an introductory control level text
   - Summation
   - Counting
   - Frame
   - Blank line
   - New page

   If you use the summation function for a field, the total is output in the same column as the field, that is, with the same output length. This means that the output length is sometimes too short to output the total, which causes an overflow (an asterisk at the first position of the value).

   To avoid such overflows when totals are output, you can simply extend the output length of the field for which the summation function is used.

2. Control Level Texts (Totals Texts)

   This screen enables you to enter a text that is then output at the beginning of a control level (for a total). In the standard system, the text of the corresponding field is used.

The system takes you from this screen to the *List Line Output Options* screen.

Creation of Statistics

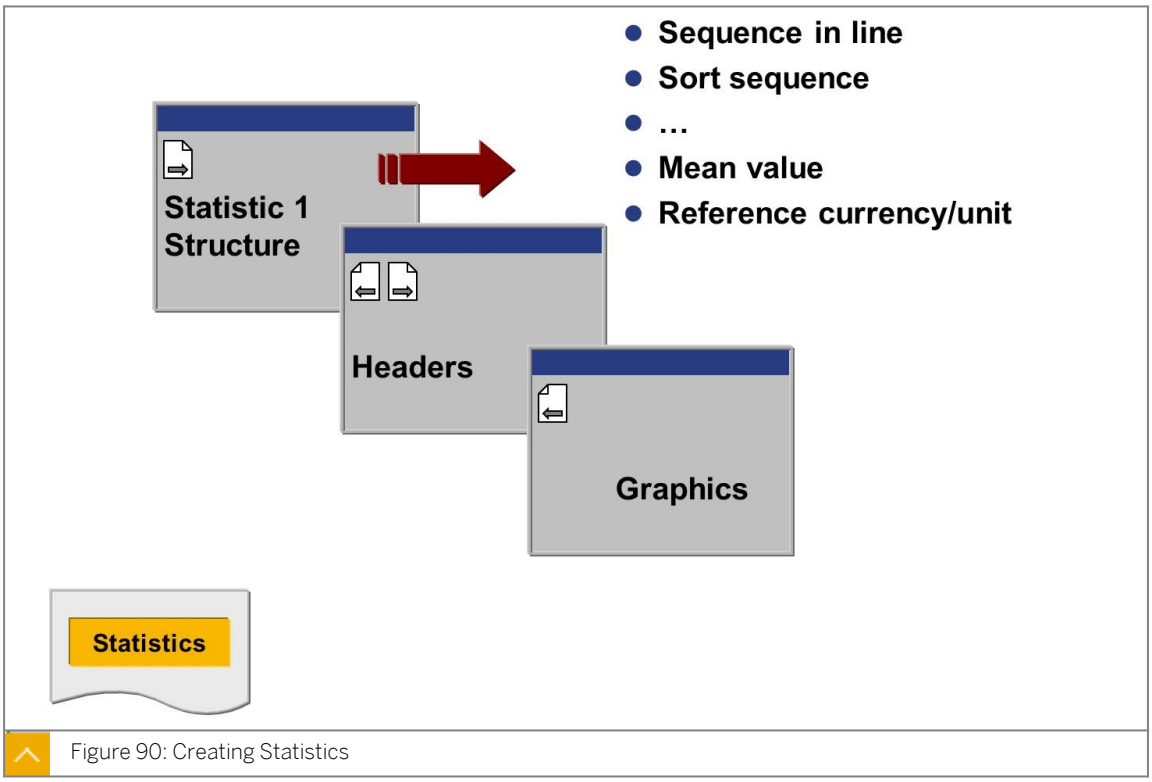


Figure 90: Creating Statistics

Statistics are used to perform analytical reporting for numerical data. The system does not output the values of numerical fields. Instead, it includes a summation function for the contents of fields, counts the number of processed records, and can output mean and percentage values.

The system guides you through the following screens for creating statistics:

1. Statistic 1 Structure (Statistic 2, Statistic 3, and so on)

   This screen enables you to define the following settings:

   - Basic settings such as field sequence, sort sequence, calculation of subtotals, field length, and use of a field text for outputting a graphic
   - Settings for processing numerical fields such as counting processed data records, mean values, the value as a percentage of the total, and rounding

2. Headers:

   This screen enables you to enter text for the footer and header. You can also change the text for column headers.

The list includes the conversions performed by the system. If errors occur, the conversions that could not be performed are logged. The affected currency amount fields or quantity fields are also highlighted within the statistics.

Depending on the definition, subtotal lines can occur within statistics. As a result of summarized statistics, the system only displays subtotals and the total.

Creation of Ranked Lists

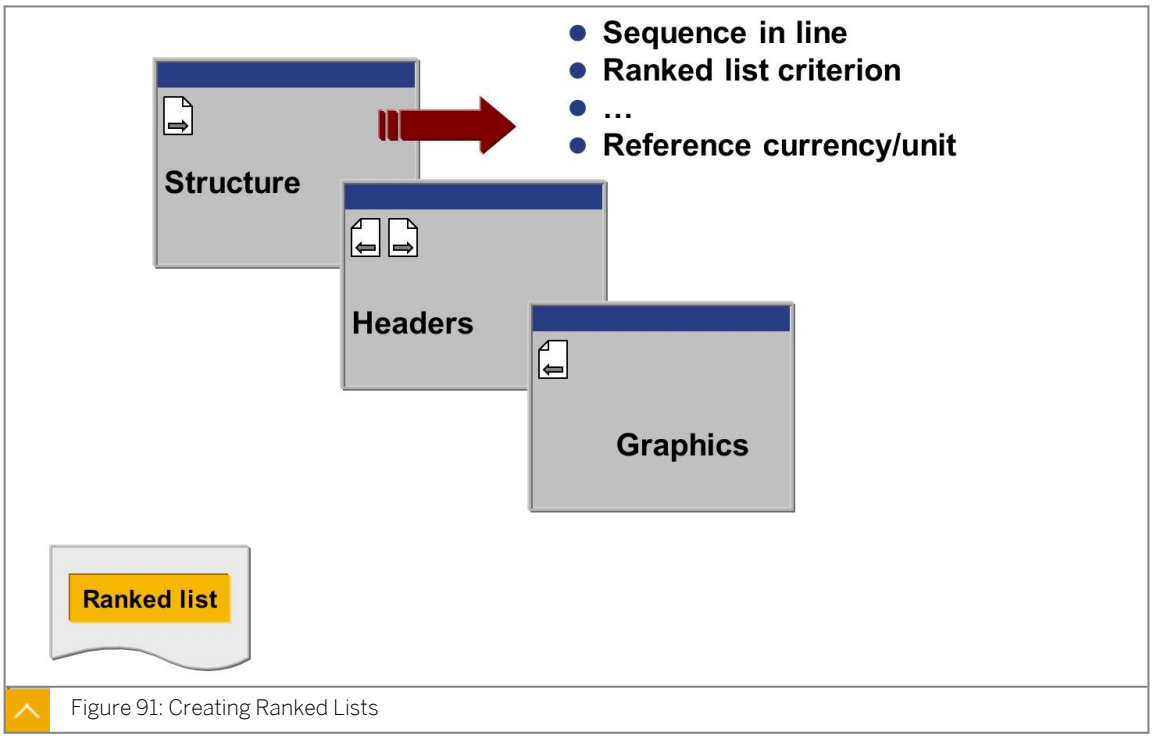


Figure 91: Creating Ranked Lists

Ranked lists are special types of statistics that are sorted in the standard system by the 10 highest values of a numerical field. This means that you can only define one numerical field as a ranked list criterion for a ranked list.

The system guides you through the following screens for creating ranked lists:

1. Ranked List 1 Structure (Ranked List 2, Ranked List 3, and so on):

   This screen enables you to define the following settings:

   - Basic settings such as the field sequence, field length, and use of a field text for outputting a graphic
   - Settings for processing numerical fields (as a ranked list), such as specifying a ranked list criterion and rounding

2. Headers:

   This screen enables you to enter text for the header and footer. You can also change the text for column headers.

Additional Fields

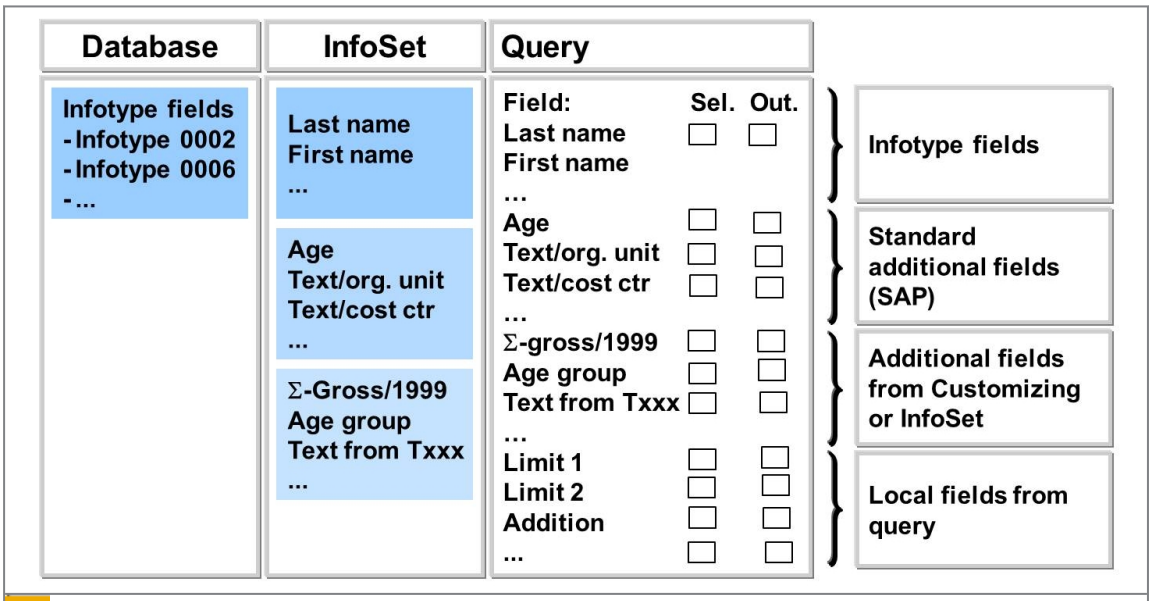


Figure 92: Additional Fields and Local Fields

The term additional fields covers all the fields that do not exist in the database table of the corresponding infotype, but that are available for reporting purposes.

Additional fields are classified as follows:

Standard additional fields:

Standard additional fields are additional fields that are required by the majority of customers. For this reason, they are available in the standard system when InfoSets are created.

Additional fields from Customizing or InfoSet:

Additional fields can also be defined by customers to meet special, company-specific requirements. They can be created in HR Customizing or when an InfoSet is created.

Local fields:

Local fields are similar to additional fields and are used to meet specific requirements. They are defined within a query and are available only for that query (for instance in SAP Query).

When these additional fields are created in Customizing, they are always available when InfoSets are created. If they are created in an InfoSet, they are only available in that particular InfoSet. To create additional fields from Customizing or an InfoSet, choose *HR Settings for SAP Query → Additional Information for Maintaining InfoSets (Functional Areas) → Define Additional Fields.*

Date Selection

Many times, the reporting period as of a single (key) date or multiple (From and To) date is sufficient to return the data you have requested. The reporting period enables you to determine the period from which objects are retrieved. The system searches for objects with valid infotype records that meet the selection criterion in the period you specify.

However, because the reporting period also affects data output, there may be cases in which you need to separate the Person Selection Period and Data Selection Period on the report selection screen.

The following example shows how to determine the reporting period:

- You want to generate a list of addresses to be used for a mailing to all persons who were active last year in a specific Personnel Area and Personnel Subarea.
- You want to use the most current Addresses infotype record, subtype 1 for Permanent Residence.

In this case, the Person Selection Period would be from the first of last year through the end of last year, and the selection criteria would be based on an Employment Status of 3 (Active), along with the appropriate Personnel Area and Personnel Subarea.

The Data Selection Period would be today, and the selection criteria would be based on subtype 1 (Permanent Residence) of the Addresses infotype.

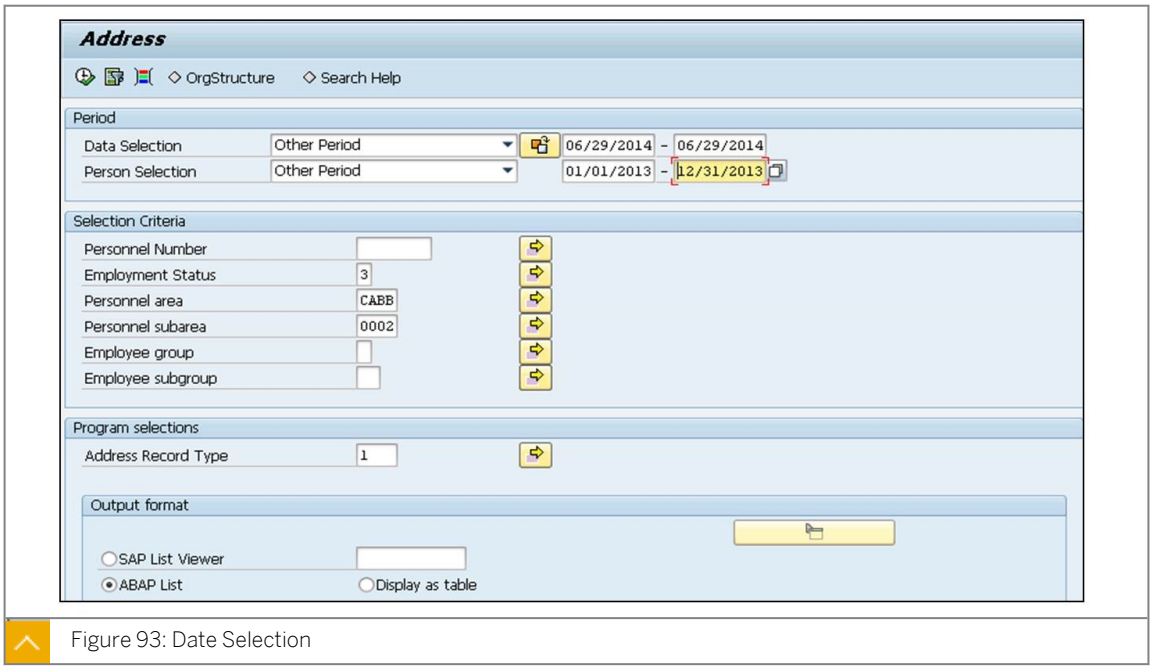


Figure 93: Date Selection

Any employee who was active in that Personnel Area and Personnel Subarea last year will then be included in the output of the data; however the address for any employee who moved after last year would show the record intersecting with "today" rather than the address record that was valid last year.

Results

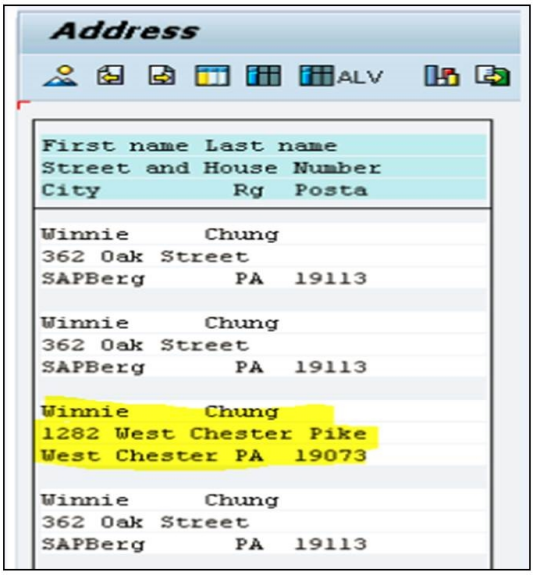


Figure 94: Results

The resulting list of addresses will be exactly what you requested.

You should keep in mind that the data record(s) returned in the output of your report will also depend on the time constraint of the infotype or subtype. In the above example, subtype 1 Permanent Residence of the Addresses infotype has a time constraint of 1, which means that the record must exist without any gaps or overlaps in its' existence. Therefore, as of a specific date, the system will always return one, and only one record per employee.

If the time constraint of the data record is a 2, however, such as subtype 3 Home Address of the Addresses infotype, the results as of a specific date may be different. This is because a time constraint of 2 means that the record may exist, and gaps are allowed, though overlaps cannot occur. In this case, an employee may or may not have a record of this subtype as of a specific date. If they do have a record of this subtype, however, there can only be 1 record for the specific date.

If the time constraint of the data record is a 3, such as subtype 2 Temporary Residence of the Addresses infotype, the results of a specific date may be different again. This is because a time constraint of 3 means that the record may exist, gaps are allowed, and overlapping records are allowed. In this case, an employee may have no records, 1 record, or multiple records of this subtype as of a specific date.

LESSON SUMMARY

You should now be able to:

- Execute reports that include specific and local fields using SAP Query

Learning Assessment

1. In SAP Query, you can create one basic list and up to ten statistics or ranked lists for one query defined by using selection and output fields.

   Determine whether this statement is true or false.

   - ☐ True
   - ☐ False

2. InfoSets are divided into:

   Choose the correct answer.

   - ☐ **A** Field groups
   - ☐ **B** Infotypes
   - ☐ **C** Output fields
   - ☐ **D** Selection fields

3. Which of the following options enables you to determine the sort sequence of fields?

   Choose the correct answer.

   - ☐ **A** List Line Output Options
   - ☐ **B** Basic List Line Structure
   - ☐ **C** Field Output Options
   - ☐ **D** Basic List Header

4. If you use the summation function for a field, the total is output in the same column as the field, with the same output length.

   Determine whether this statement is true or false.

   - ☐ True
   - ☐ False

5. _____ are used to perform analytical reporting for numerical data.

   Choose the correct answer.

   - ☐ A Basic lists
   - ☐ B Statistics
   - ☐ C Ranked lists
   - ☐ D Additional fields

6. Ranked lists are special types of statistics that are sorted in the standard system by the 10 highest values of a numerical field.

   Determine whether this statement is true or false.

   - ☐ True
   - ☐ False

Learning Assessment - Answers

1. In SAP Query, you can create one basic list and up to ten statistics or ranked lists for one query defined by using selection and output fields.

   Determine whether this statement is true or false.

   - [ ] True
   - [X] False

2. InfoSets are divided into:

   Choose the correct answer.

   - [X] A Field groups
   - [ ] B Infotypes
   - [ ] C Output fields
   - [ ] D Selection fields

3. Which of the following options enables you to determine the sort sequence of fields?

   Choose the correct answer.

   - [ ] A List Line Output Options
   - [X] B Basic List Line Structure
   - [ ] C Field Output Options
   - [ ] D Basic List Header

4. If you use the summation function for a field, the total is output in the same column as the field, with the same output length.

   Determine whether this statement is true or false.

   - [X] True
   - [ ] False

5. _____ are used to perform analytical reporting for numerical data.

   Choose the correct answer.

   - [ ] A Basic lists
   - [x] B Statistics
   - [ ] C Ranked lists
   - [ ] D Additional fields

6. Ranked lists are special types of statistics that are sorted in the standard system by the 10 highest values of a numerical field.

   Determine whether this statement is true or false.

   - [x] True
   - [ ] False

UNIT 7 Payroll and Time Management Infotypes

UNIT OBJECTIVES

- Set up a payroll infotype (PIT) to report on payroll cluster information
- Review the setup and assignment of simulated time infotypes for enhanced time reporting

Unit 7
Lesson 1

Setting Up Payroll Infotypes

LESSON OVERVIEW

This lesson explains the concepts of payroll and shows how to set up payroll infotypes (PITs).

Business Example

As a member of the HR team, you require reports on payroll results, such as a list of all employees with an annual gross income exceeding 100,000, and results of specific wage types per employee, per personnel area, and per organizational unit.

For this reason, you require the following knowledge:

- An understanding of payroll infotypes and their structures
- An understanding of how to set up payroll infotypes

LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Set up a payroll infotype (PIT) to report on payroll cluster information

Payroll Infotypes

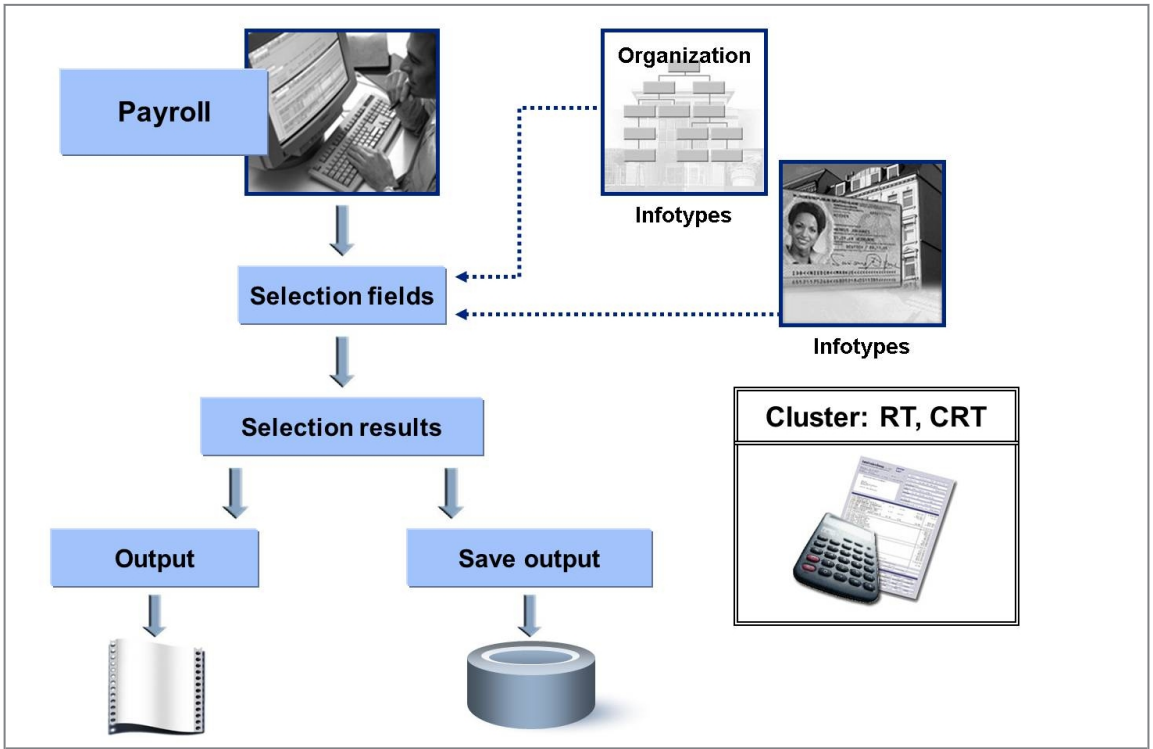


Figure 95: Reporting on Payroll Results I

Most Human Resources data is stored in infotypes. You can report on this data by using standard reporting procedures such as Ad Hoc Query or SAP Query. Payroll results are stored in cluster tables. You can only report on payroll results by using either specific standard reports or reports that you have programmed using the ABAP Editor or transaction code SE38.

Payroll Results – Reporting

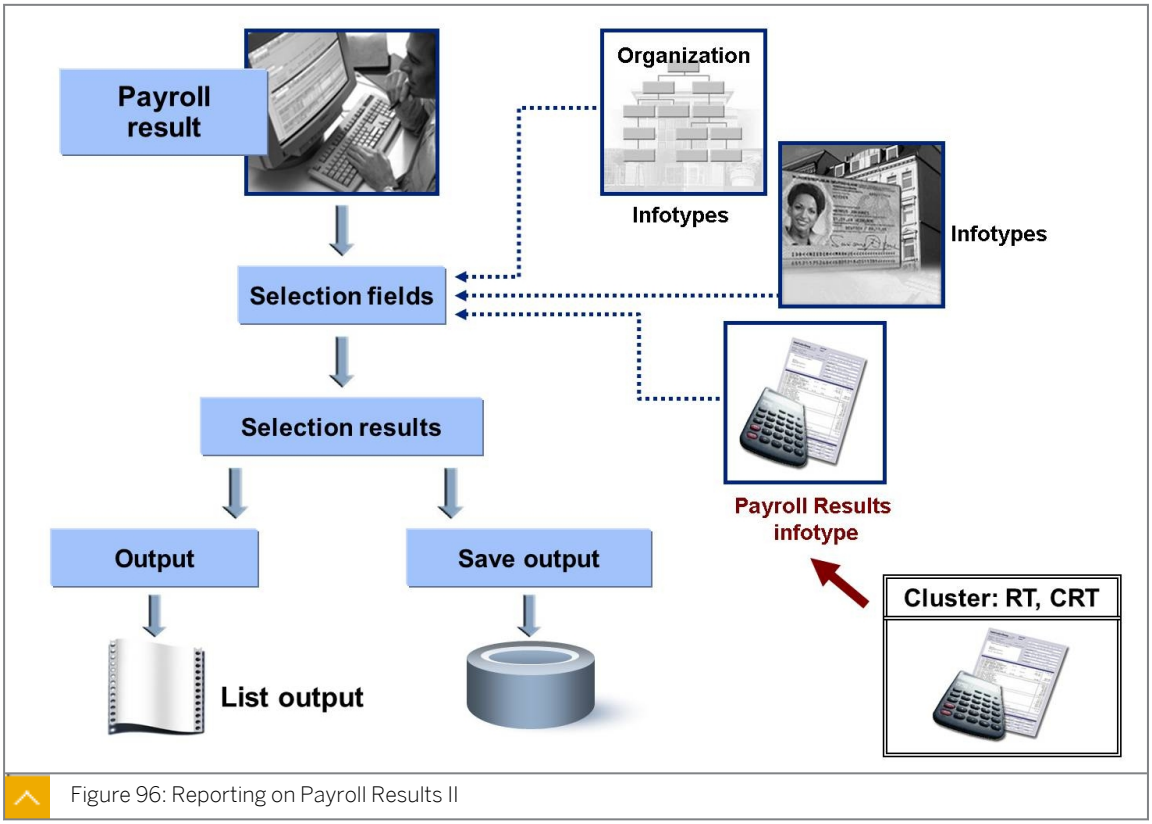


Figure 96: Reporting on Payroll Results II

To evaluate payroll results in the same way as other HR data, you can set up payroll infotypes in the following ways:

- Use preconfigured payroll infotypes
- Define your own payroll infotypes

Structure of Payroll Infotypes

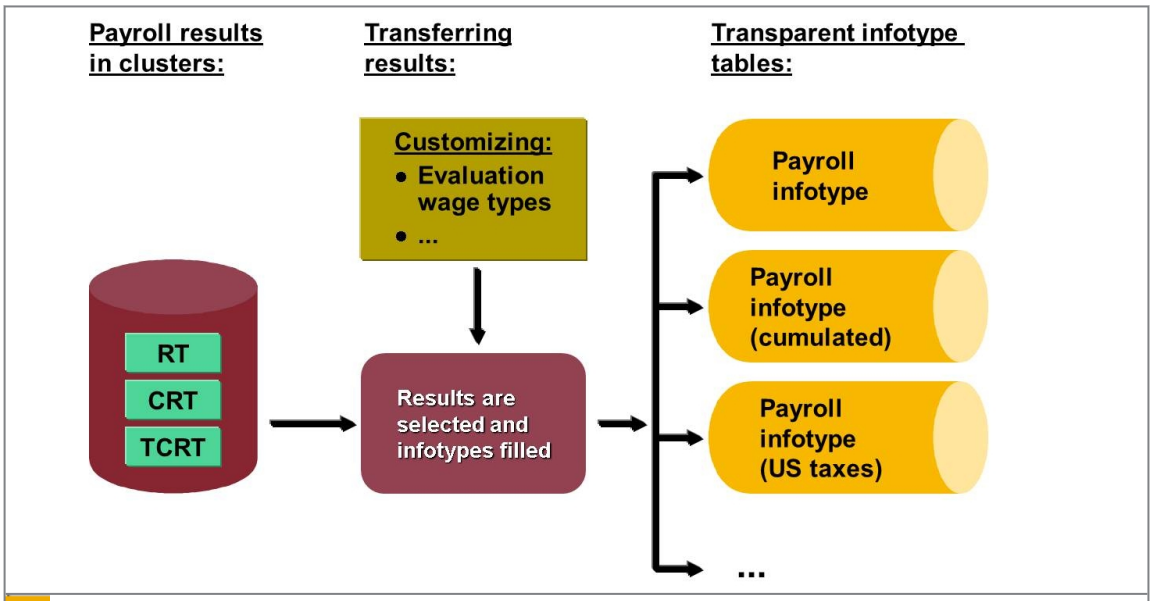


Figure 97: Structure of Payroll Infotypes

The basic principle of PIT involves defining an infotype whose specific fields correspond to the results of one or more wage types in the payroll.

To enable the results of (technical) wage types to be aggregated, evaluation wage types (EWTs) are defined in an intermediate step. EWTs are used to define the payroll infotypes.

For example, you can use EWTs to define PITs as shown in the following table:

Table 5: Payroll Infotypes

Wage Type	EWT	PIT
/101 (Gross/Employee)	Gross/ER-EWT	Gross/ER-PIT
/262 (Gross/Social Contribution/ER)	Gross/ER-EWT	-

Technical wage types **/101** and **/262** are both written to EWT **Gross/ER-EWT**. In this case, the payroll infotype **Gross/ER-PIT** only contains this evaluation wage type.

Like all other infotypes in Personnel Administration, PITs have three substructures (key fields/*PAKEY*, administrative fields/*PSHD1*, and infotype-specific fields/*PSnnnn*). The infotype-specific fields are contained in substructure *PSnnnn*.

In the case of payroll infotypes, *PSnnnn* contains additional, payroll-specific fields (such as sequence number and MOLGA) that are created automatically when a PIT is created.

The infotype-specific fields of a PIT are contained in *include CI_Pnnnn*. These fields correspond to the EWTs defined in Customizing.

The structure of infotypes that are preconfigured for the USA (such as 0446) also contains the following key fields:

- TXCMP (tax interface)
- TAXAU (tax authorities)

Cumulated Payroll Infotypes

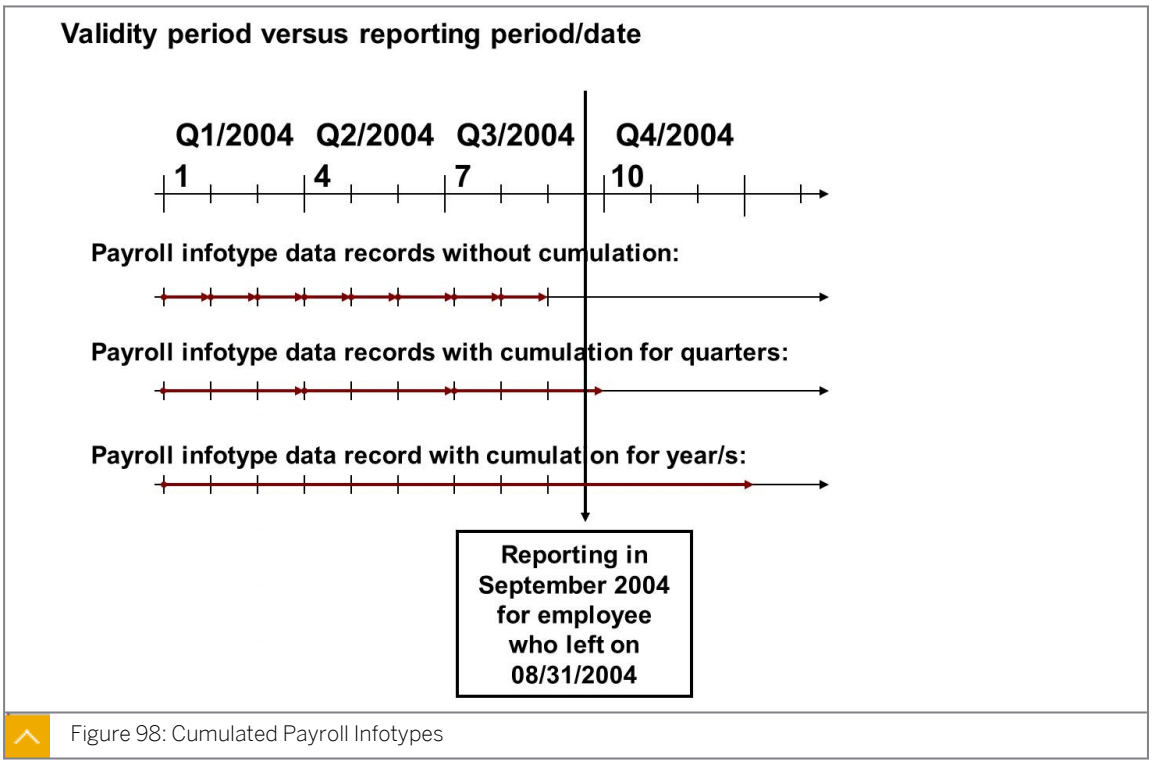


Figure 98: Cumulated Payroll Infotypes

Depending on the reports that you require, you can cumulate payroll results and then import them into payroll infotypes. In this case, you must define cumulated payroll infotypes.

When defining cumulated payroll infotypes, you can determine which amounts are included in the PIT and the number of infotype records that are created (in relation to the payroll period).

You can create PIT data records without cumulation. In this example, each record contains the total paid for the corresponding payroll period.

An example of PIT data records without cumulation is as follows:

Record 1 for period 012004: 3000 EUR

Record 2 for period 022004: 3200 EUR

An example of cumulated PIT data records is as follows:

Record 1 for quarter 012004: 3000 Euro (on 01/31/04)

Record 1 for quarter 012004: 6200 Euro (on 02/28/04)

Record 1 for quarter 012004: 9200 Euro (as of 03/31/04)

Record 2 for quarter 012004: 12200 Euro (on 01/31/04)

Record 2 for quarter 012004: 15200 Euro (as of 02/28/04)

In cumulated PIT data records, each record always contains the cumulated payroll values.

When cumulated PITs are set up, you no longer need to define the assignment to EWTs. This assignment is taken from PITs that are not cumulated.

PIT Creation

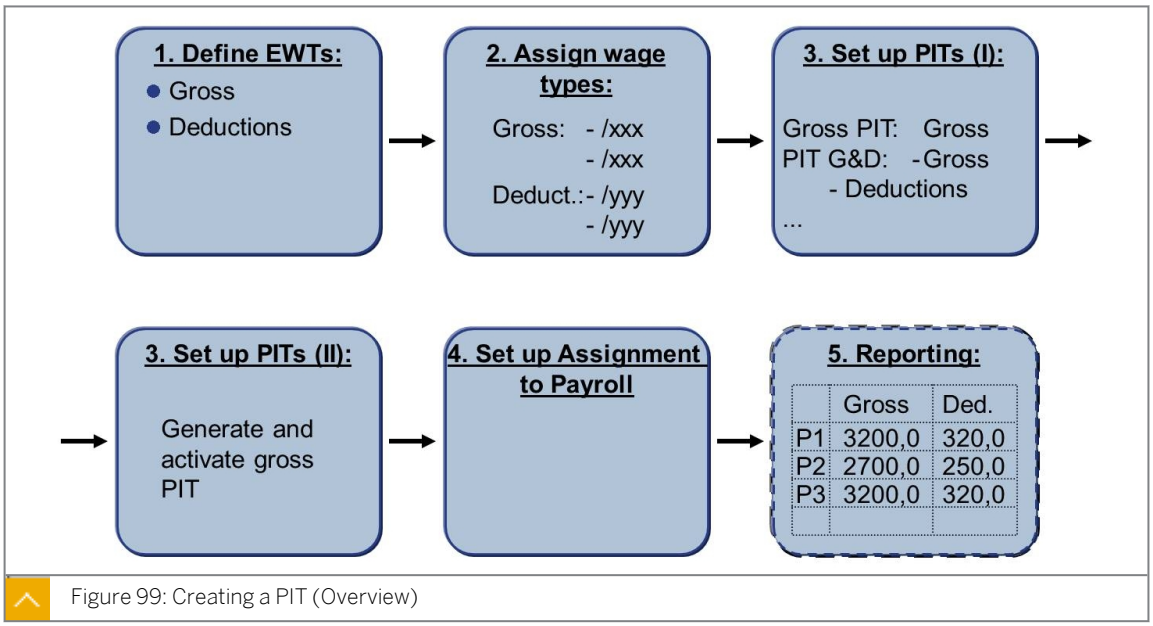


Figure 99: Creating a PIT (Overview)

PITs are created in Customizing for HR Information Systems.

To create a PIT, in Customizing, choose *Personnel Management → Human Resources Information System → Payroll Results*.

To work with preconfigured payroll infotypes, you need to perform some of the following Customizing activities:

- Define EWTs
- Assign wage types
- Set up payroll infotypes
- Set up assignment to payroll

Definition – EWTs

Eval. WT	Cum	Amount	No.	EWT text
Z101		●	○	Gross
Z101	M	●	○	Gross/M
Z101	Q	●	○	Gross/Q
Z101	Y	●	○	Gross/Y
Z262		●	○	Deductions
Z262	M	●	○	Ded./M
Z262	Q	●	○	Ded./Q
Z262	Y	●	○	Ded./Y
Z560		●	○	Payment
Z560	M	●	○	Payment/M
Z560	Q	●	○	Payment/Q
Z560	Y	●	○	Payment/Y
ZContrib1		●	○	Contrib.
		●	○	
		●	○	
		●	○	
		●	○	

1. **Define Evaluation Wage Types**
2. Assign Wage Types
3. Set up Payroll Infotypes
4. Set up Assignment to Payroll

- ID of evaluation wage type
- Cumulation type (year, ...)
- Text of evaluation wage type (→ field in SAP Query/Ad Hoc Query)
- Number/amount

Figure 100: Defining EWTs

An EWT consists of one or more wage types and is used to define PITs. An EWT can include amounts or numbers and is created based on a wage type used in payroll processing.

This step enables you to define EWTs. The definition of EWTs is country-specific; it is defined by the MOLGA.

Wage Types – Assignment

Eval. WT	K	EWT Text	W.Type	Negative
Z101		Gross	/101	☐
Z101	M	Gross/M	/101	☐
Z101	Q	Gross/Q	/101	☐
Z101	Y	Gross/Y	/101	☐
Z262		Deductions	/262	☐
Z262	M	Ded./M	/262	☐
Z262	Q	Ded./Q	/262	☐
Z262	Y	Ded./Y	/262	☐
ZContrib		Contrib.	1000	☐
ZContrib	M	Contrib.	1100	☐
ZContrib	Q	Contrib.	1200	☒
ZContrib	Y	Contrib.	1200	☐
				☐
				☐
				☐
				☐
				☐

1. Define Evaluation Wage Types
2. **Assign Wage Types**
3. Set up Payroll Infotypes
4. Set up Assignment to Payroll

EWT: wage type
1: n

Figure 101: Assigning Wage Types

This step enables you to determine the (technical) wage types entered in an EWT. The technical wage types are obtained from the payroll results.

Payroll Infotypes – Set Up

Generate Payroll Infotype			
IType	Eval. WT	K	EWT Text
9580	Z101		Gross
9580	Z101	M	Gross/M
9580	Z101	Q	Gross/Q
9580	Z101	Y	Gross/Y
9584	Z262		Deductions
9584	Z262	M	Ded./M
9584	Z262	Q	Ded./Q
9584	Z262	Y	Ded./Y

1. Define Evaluation Wage Types
2. Assign Wage Types
3. a **Set up Payroll Infotypes: assign and generate evaluation wage types**
4. Set up Assignment to Payroll

- Enter infotype from customer namespace **9nnn** or use preconfigured PIT
- Assign evaluation wage types
- Generate

Figure 102: Setting Up Payroll Infotypes

This step enables you to define the PIT by assigning EWTs to it. You then generate the PIT and the appropriate screens and tables are generated.

Hint:
You can only use entries from the customer namespace (9nnn) as infotype numbers.

Set Up Payroll Assignment

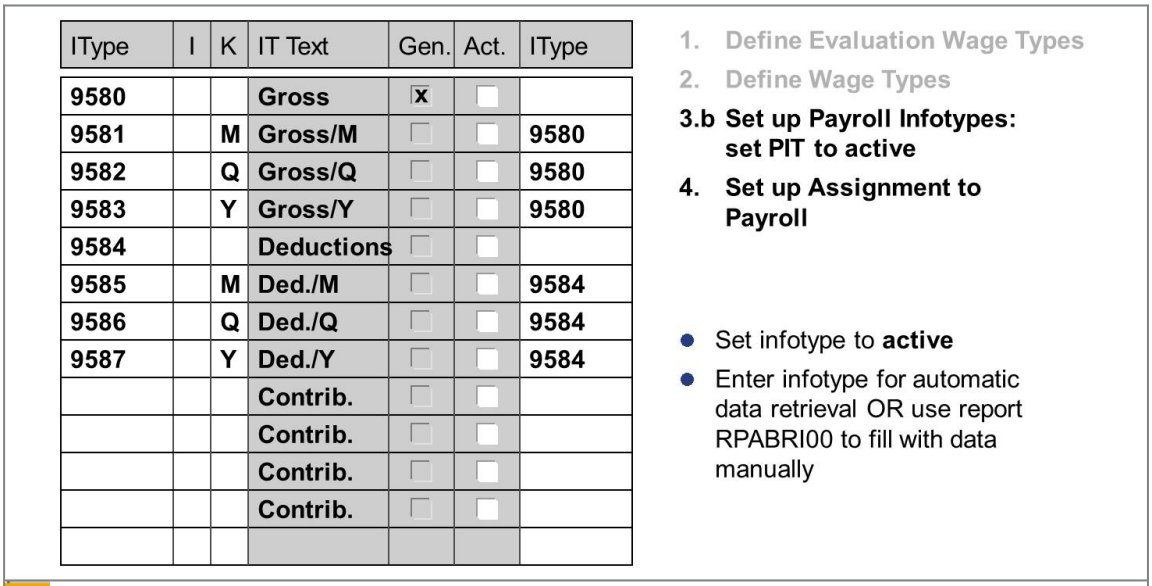


Figure 103: Setting Up Payroll Infotypes (II) and Setting Up Payroll Assignment

This step enables you to set the generated PIT to active by selecting the *Generate* field on the *Change View Payroll Infotypes: Overview* table. Once the PIT has been set to active, you can test it to ensure that it functions correctly.

Perform the following steps to test the PIT:

1. Transfer payroll results manually from payroll cluster tables to the PIT (RPABRI00).
2. Display the contents of the corresponding database tables (PA9*) by using SE16 and compare the content with the values in the relevant payroll clusters (for example, with RPCLSTRD for Germany).
3. Display the values in the PIT fields using the HR master data of the corresponding persons.

To ensure that the PIT is filled with data automatically, enter the PIT in the *Set up Assignment to Payroll* Customizing activity.

LESSON SUMMARY

You should now be able to:

- Set up a payroll infotype (PIT) to report on payroll cluster information

Unit 7
Lesson 2

Simulating Time Infotypes

LESSON OVERVIEW
This lesson explains the concept of simulated infotypes in Time Management.

Business Example

For reporting purposes, you require time evaluation results together with information from Time Management infotypes.

For this reason, you require the following knowledge:

- An understanding of simulated time infotypes
- An understanding of simulated infotypes for personal work schedules, employee times, and quota statuses

LESSON OBJECTIVES
After completing this lesson, you will be able to:

- Review the setup and assignment of simulated time infotypes for enhanced time reporting

Simulated Time Infotypes

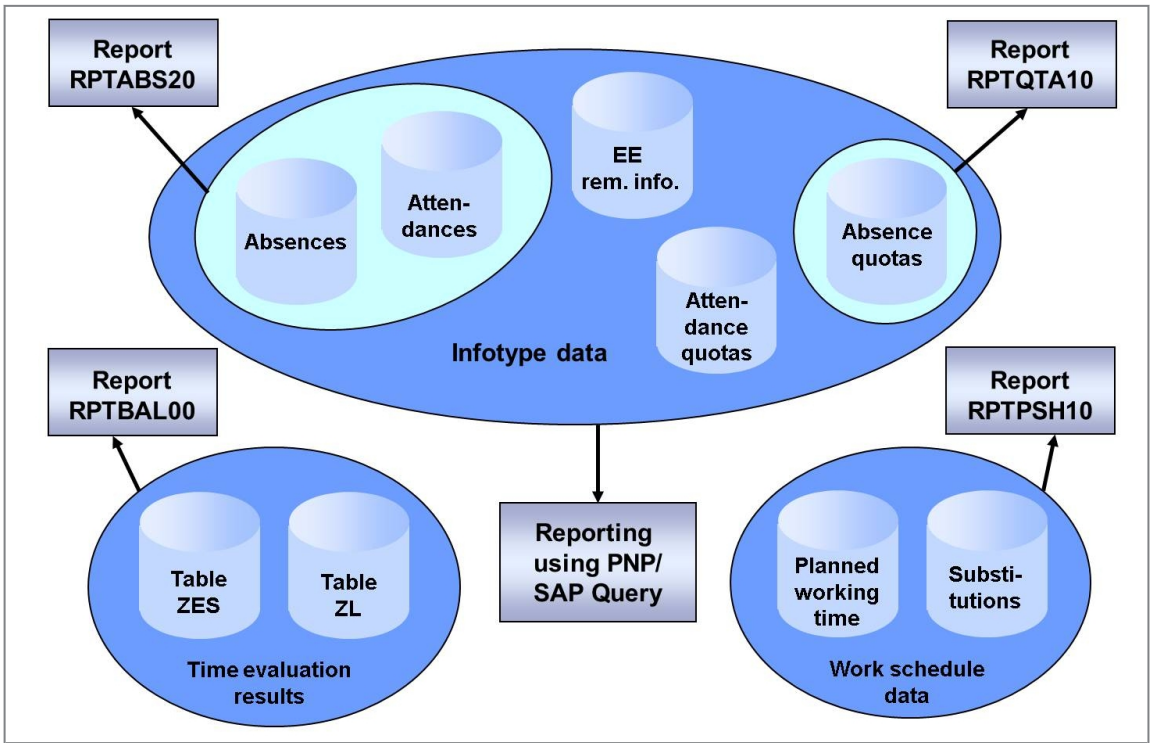


Figure 104: Time Management Reporting Without Simulated Infotypes

Time management data is stored in various infotypes and in cluster B2 (time evaluation results). The standard reports enable you to run evaluations for individual data sources, such as infotype data (for example, the report RPTABS20) or cluster data (for example, the report RPTBAL00), but not for both infotype data and cluster data at the same time. Therefore, standard reports may often provide only a section of the relevant data.

Time Management Reporting with Simulated Infotypes

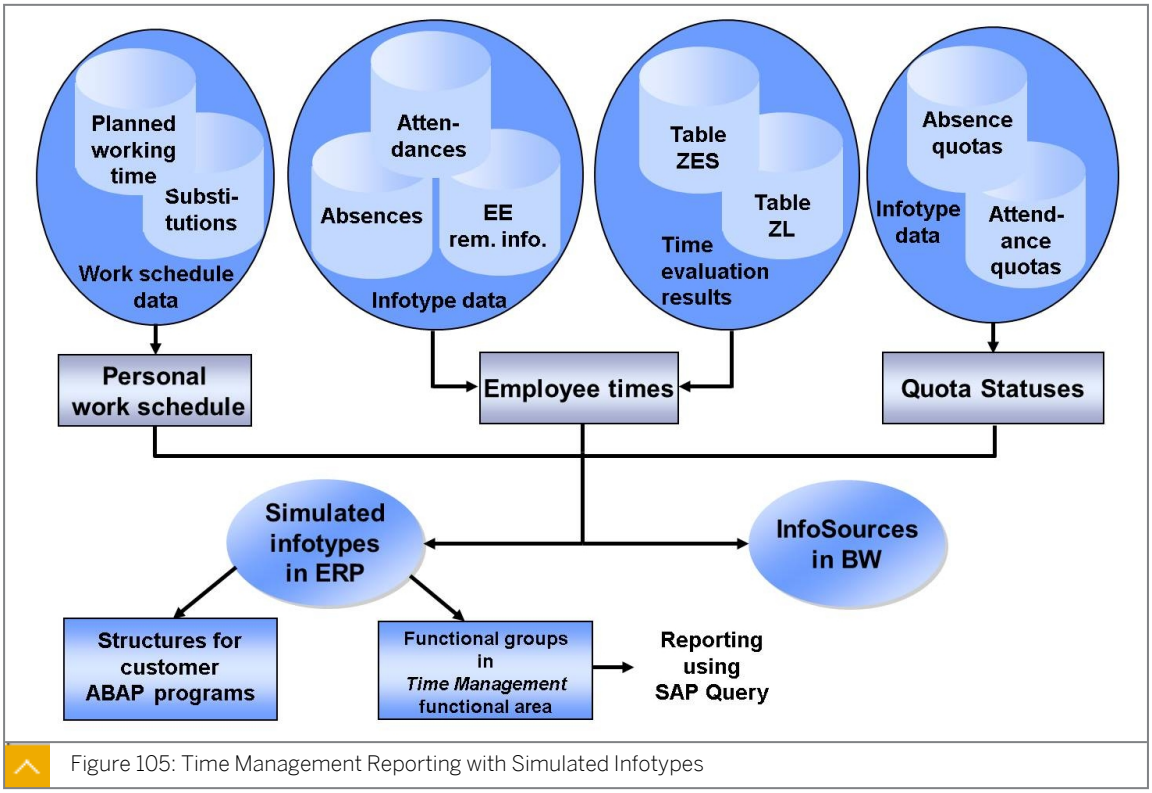


Figure 105: Time Management Reporting with Simulated Infotypes

Simulated infotypes enable you to run reports for a wider range of business purposes. The infotype concept provides data from various sources (infotype data, time evaluation results, and data from the personal work schedule) in a clear overview. For example, you can use simulated infotypes to read and evaluate cluster data (cluster tables ZES, ZL with ALP and C1) using infotype structures.

Simulated infotypes are simulated because infotype data is not stored in an infotype database table, as is usually the case. Instead, it is retrieved from a variety of database tables at runtime by a function module in Time Management.

Similar to other infotypes, simulated infotypes are available in the logical database PNPCE. This means that they can be used like other infotypes for customer ABAP programs and reporting with SAP Query.

Hint:
You can also use business-oriented Business Warehouse structures (InfoSources) in ERP as simulated infotypes.

Note:
Earlier, to evaluate several-day attendances or absences (especially evaluations outside the evaluation period), the attendance or absence records had to be counted by each individual report up to now. This is not an issue for simulated infotypes because the attendance and absence records are counted and provided for each day.

Simulated Infotype: Personal Work Schedule

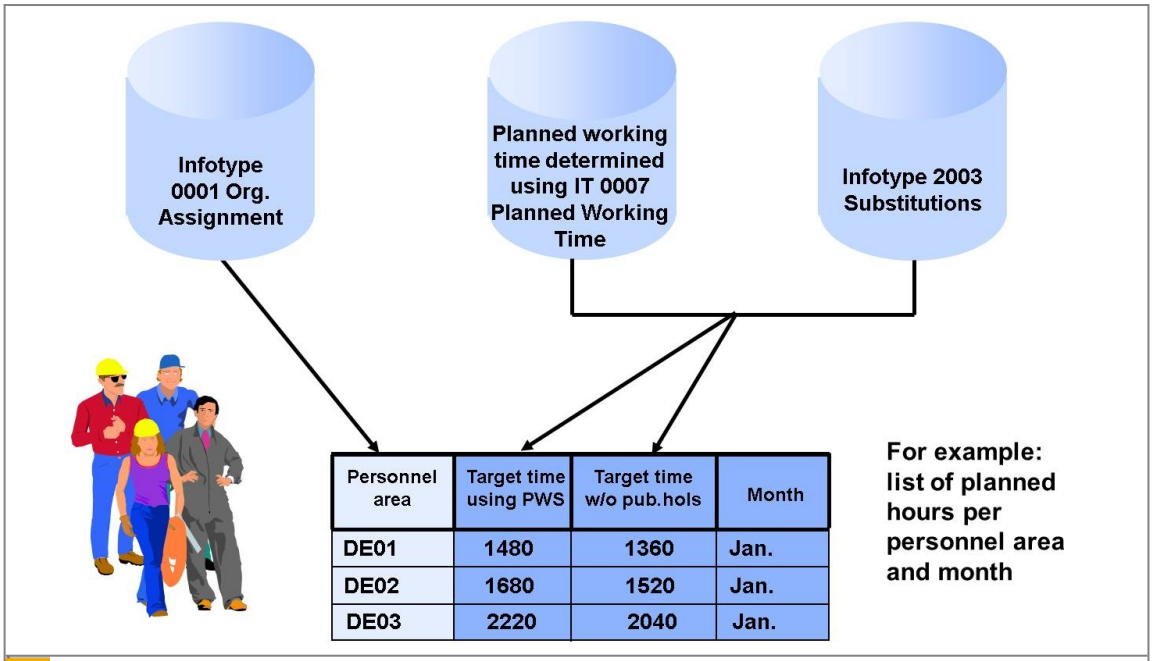


Figure 106: Simulated Infotype – Personal Work Schedule (2500)

The simulated infotype Personal Work Schedule Times (2500) includes the following data:

- Data from the *Organizational Assignment* (0001) infotype and the *Planned Working Time* (0007) infotype
- Additional information, such as target time according to the personal work schedule and target time without public holidays

Target time is determined using the following data:

- Daily work schedule (determined by applying the relevant work schedule rule from the *Planned Working Time* (0007) infotype)
- Employment percentage from the *Planned Working Time* (0007) infotype
- *Substitutions* (2003) infotype

Simulated Infotype: Employee Times

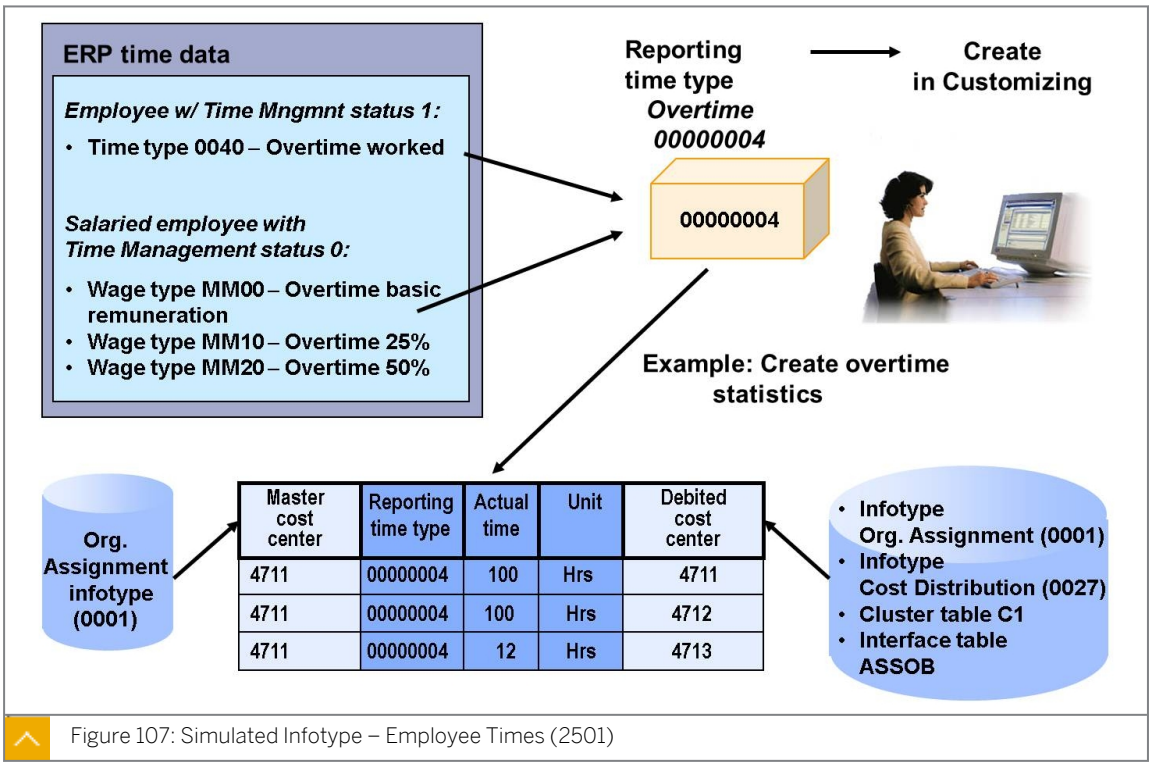


Figure 107: Simulated Infotype – Employee Times (2501)

The simulated infotype Employee Times (2501) includes the following data:

- Data from the *Organizational Assignment* (0001) infotype and the *Planned Working Time* (0007) infotype
- Employee time data, such as the *reporting time type* (REPTT field) with the number of hours and days
- Cost assignment data
- Activity allocation data
- Different payment data

The *reporting time type* facilitates a standard view of employee time from a variety of Time Management datasets, such as attendances, absences, employee remuneration information, and time evaluation results from tables ZES, ZL, C1, and ALP of cluster B2.

You create the reporting time type in Customizing and use it to group the required time data together.

For example, you can use a reporting time type to create overtime statistics that are based on overtime data from different data sources.

Simulated Infotype: Quota Statuses

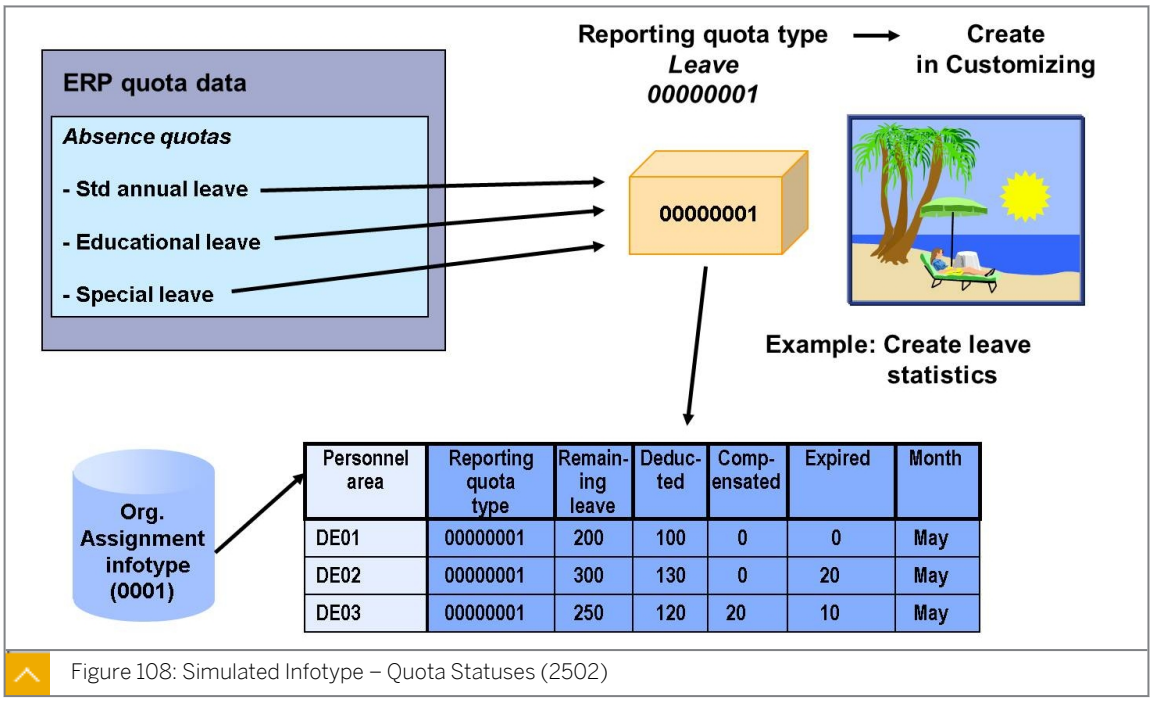


Figure 108: Simulated Infotype – Quota Statuses (2502)

The simulated infotype Quota Statuses (2502) includes the following data:

- Data from the *Organizational Assignment* (0001) infotype and the *Planned Working Time* (0007) infotype
- The following quota transaction data:
  - Reporting quota type (field *QUOTA*)
  - Data from the *Absence Quotas* (2006) infotype
  - Data from the *Attendance Quotas* (2007) infotype

The new term *reporting quota type* facilitates a standard view of quota data from a variety of Time Management datasets, such as attendance quotas and absence quotas. You create the reporting quota type in Customizing, and use it to group required quota data together. For example, you can use a reporting quota type to create leave statistics that are based on a variety of absence quotas.

Note:
The simulated infotype *Quota Statuses* also takes into account data from the *Leave Entitlement (0005) infotype*.

LESSON SUMMARY

You should now be able to:

- Review the setup and assignment of simulated time infotypes for enhanced time reporting

Learning Assessment

1. Payroll results are stored in:

   Choose the correct answer.

   - [ ] A Cluster tables
   - [ ] B InfoCubes
   - [ ] C InfoSets
   - [ ] D Queries

2. To evaluate payroll results, you can define your own payroll infotypes.

   Determine whether this statement is true or false.

   - [ ] True
   - [ ] False

3. You connect technical wage types to evaluation wage types, which are connected to payroll infotypes.

   Determine whether this statement is true or false.

   - [ ] True
   - [ ] False

4. Simulated infotypes enable you to run reports for a wider range of business purposes.

   Determine whether this statement is true or false.

   - [ ] True
   - [ ] False

Learning Assessment - Answers

1. Payroll results are stored in:

   Choose the correct answer.

   - [X] A Cluster tables
   - [ ] B InfoCubes
   - [ ] C InfoSets
   - [ ] D Queries

2. To evaluate payroll results, you can define your own payroll infotypes.

   Determine whether this statement is true or false.

   - [X] True
   - [ ] False

3. You connect technical wage types to evaluation wage types, which are connected to payroll infotypes.

   Determine whether this statement is true or false.

   - [X] True
   - [ ] False

4. Simulated infotypes enable you to run reports for a wider range of business purposes.

   Determine whether this statement is true or false.

   - [X] True
   - [ ] False

UNIT 8 Analytical Reporting for HCM

UNIT OBJECTIVES

- Outline the integration between HCM reporting and analytics using SAP BW
- Execute a BEx query
- View a HCM report in SAP BusinessObjects Dashboards
- List the HCM content required for operational data provisioning

Unit 8
Lesson 1

Creating HCM Reports with SAP NetWeaver Business Warehouse

LESSON OVERVIEW

This lesson shows how Human Capital Management (HCM) reporting is integrated with analytics using SAP Business Warehouse (SAP BW).

Business Example

Management regularly requires reporting information from Human Resources (HR). You are an employee in the HR Controlling department. SAP BW enables you to provide authorized persons with the up-to-date key figures and reports. For this reason, you require the following knowledge:

- An understanding of how SAP Business Warehouse is used in HCM
- An understanding of the business content of the InfoCubes, queries, and key figures available in HCM
- An understanding of how to execute HR queries

LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Outline the integration between HCM reporting and analytics using SAP BW
- Execute a BEx query

SAP BW for HCM

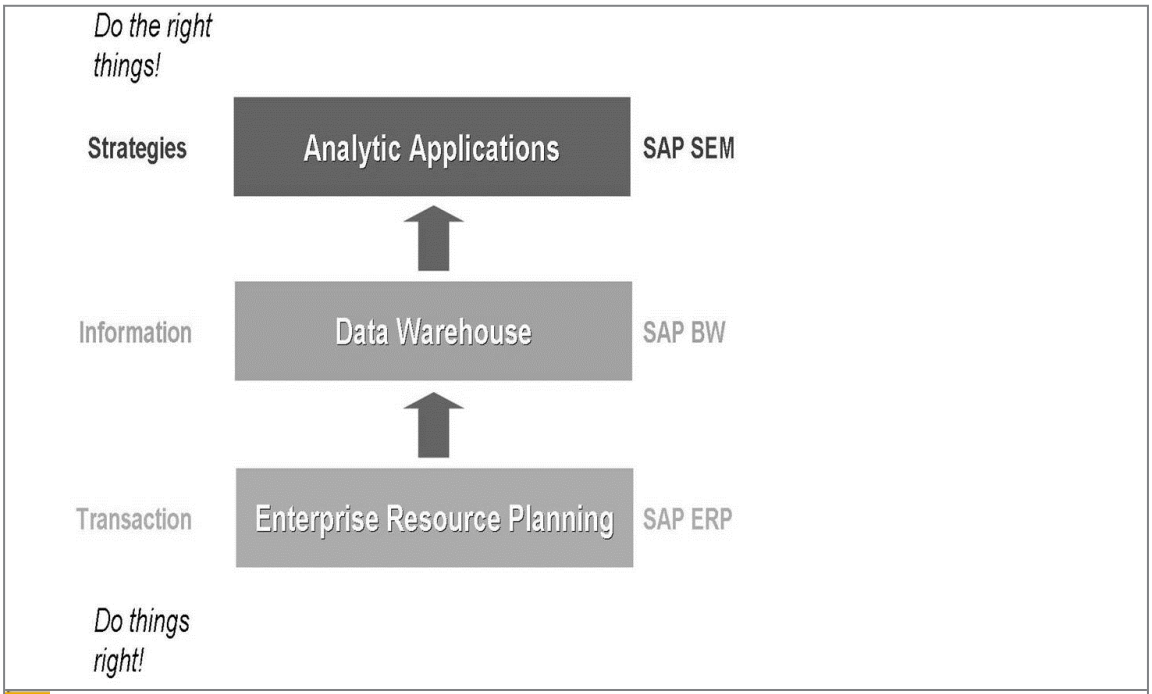


Figure 109: HCM in SAP BW and SEM – Overview

A data warehouse is a standalone application environment with its own database that extracts data from different data sources. It is used to perform queries and analyses.

SAP BW has the following features:

- It combines state of the art data warehouse technology with SAP business expertise.
- It is a standalone system with its own release cycle.

Human Resources Analytics

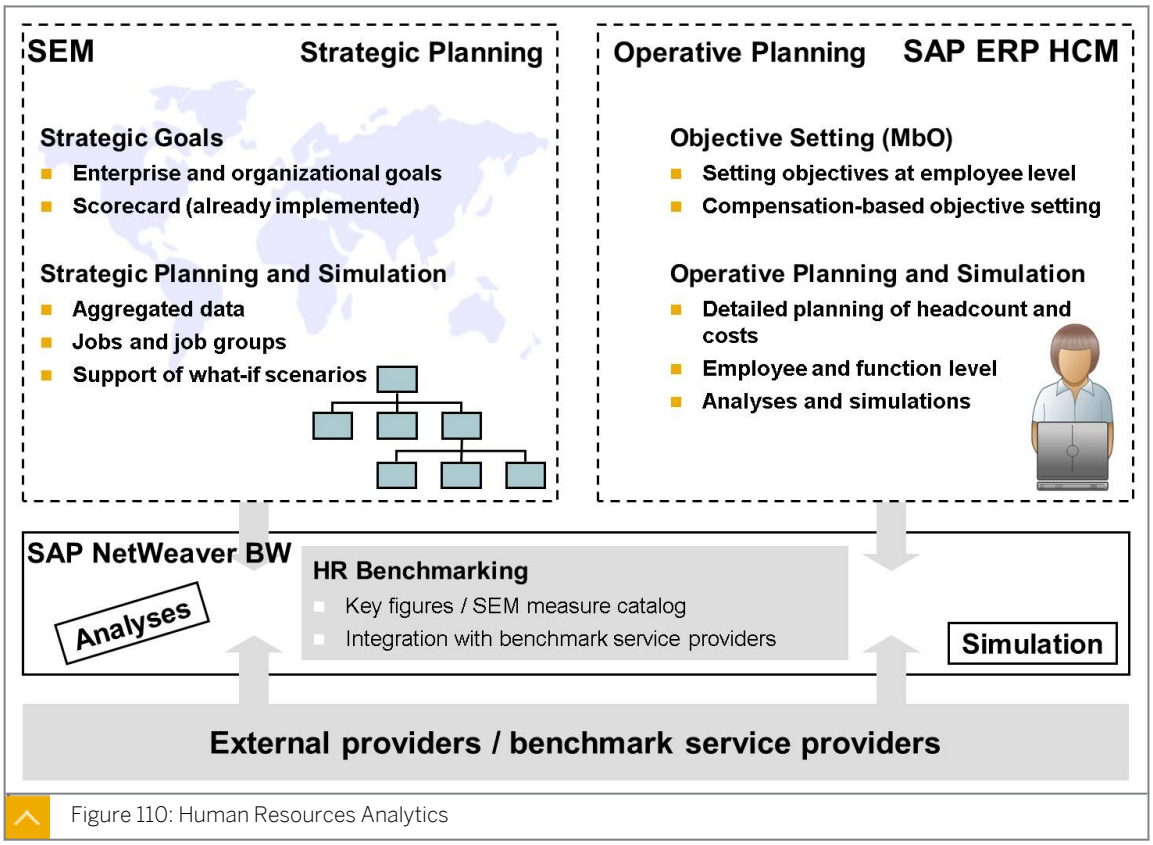


Figure 110: Human Resources Analytics

The figure shows the comparison between strategic planning in SAP SEM and operative planning in SAP ERP HCM.

Human resources analytics combines the strategic planning of SAP SEM with the operative planning of SAP ERP HCM to provide integrated business content for extensive analyses and benchmarking.

SAP BW for HCM

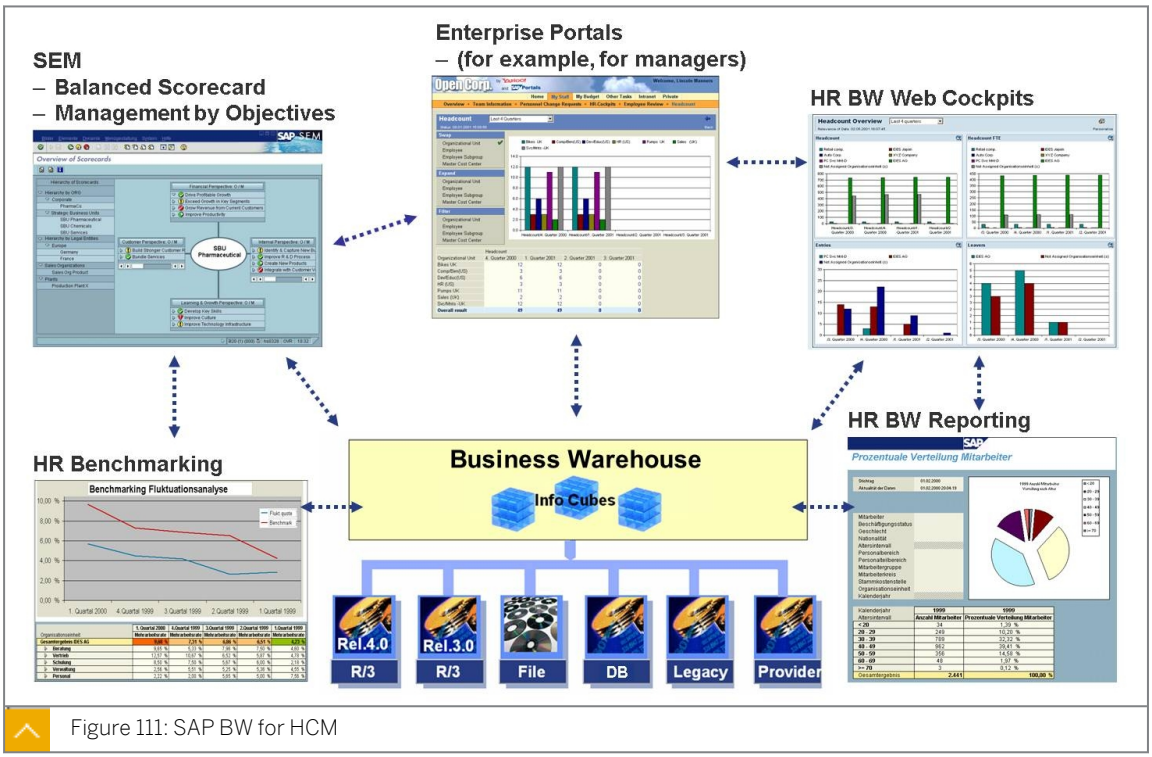


Figure 111: SAP BW for HCM

Data from SAP BW is used as a basis in different ways.

Decision makers require reliable information from Production, Purchasing, Sales, Financial Accounting, and Human Resources. They require an up to date and comprehensive overview of a given business area, and also of the whole business environment. This necessitates highly efficient and reliable data retrieval from the relevant data sources.

Information needs to be collated at a central point from which all data can be accessed.

Efficient analysis technologies with meaningful, multimedia display options are indispensable. The information requirements of a wide variety of user groups must be met.

The advantages of SAP BW are as follows:

- Standardized structure and display for all corporate information
- Easy access to corporate information through single point of entry
- Highly sophisticated reporting for analyses
- Environment conducive to high performance
- Data retrieval from heterogeneous environment

Components of SAP BW

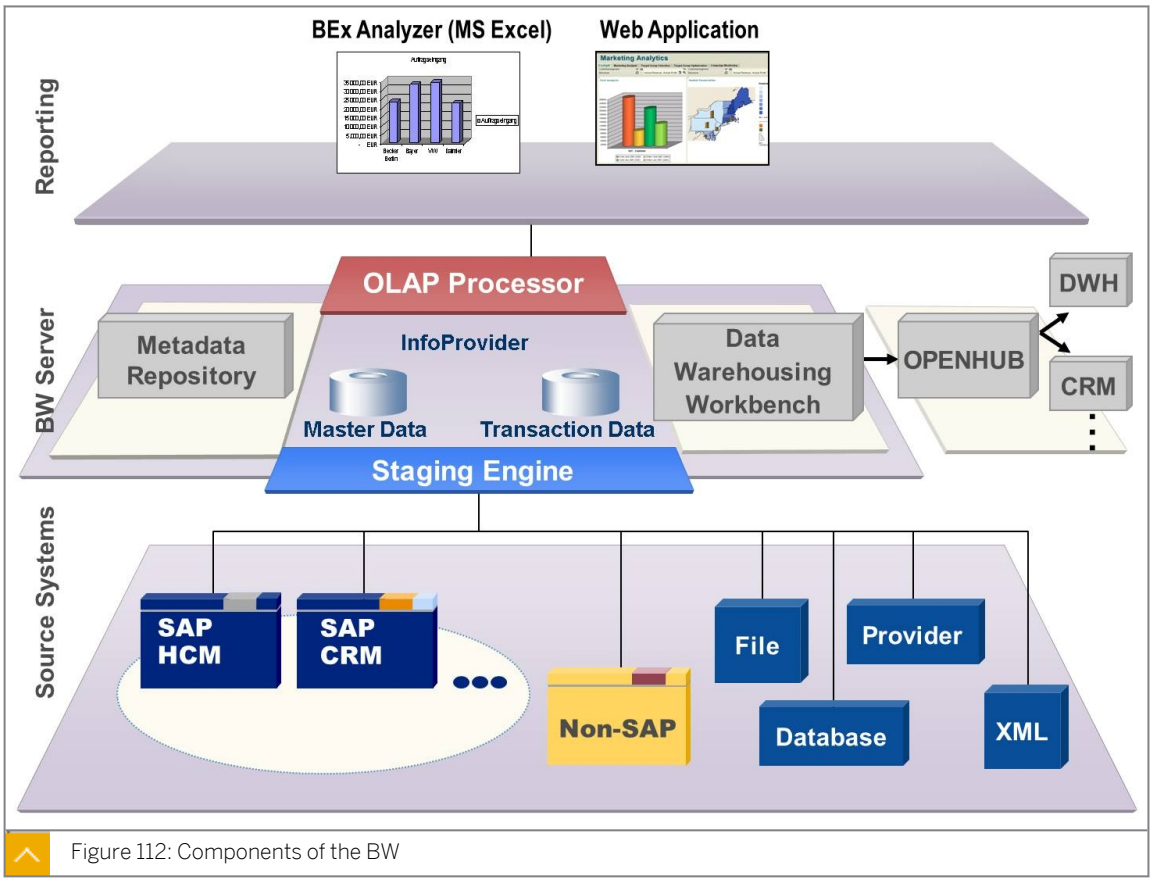


Figure 112: Components of the BW

The figure Components of the BW, provides an overview of the structure of SAP BW in a heterogeneous system landscape.

With SAP BW, at the lowest level, source systems can be SAP systems and non SAP systems. Reporting can be executed using data extracted from SAP systems, non SAP systems, or from external sources such as databases, online services, and the Internet.

Extractors are programs that enable data extraction and are used to retrieve data from the SAP system. HR extractors are delivered for HR as business content. This data is managed in SAP BW.

The Data Warehousing Workbench is an easy to use, central administrative tool. It is used, amongst other things, to manage the various source systems.

SAP Business Explorer (SAP BEx) tools are used to display, analyze, and further process reports in MS Excel.

Online Analytical Processing (OLAP) performs the following tasks:

- Executes queries and generates different views of a query
- Facilitates horizontal, vertical, and hierarchical drilldowns
- Enables you to exchange characteristics (navigation)
- Enables you to use various aggregation functions (total, numerator, min./max., and first/last), comparison (deviation, ratio, and percentage), sequences (sorting, cumulated totals, time series, and values), and currency conversion

InfoCubes

InfoCubes are n-dimensional data stores that are available for reporting. An InfoCube consists of InfoObjects.

InfoObjects consist of the following types of data:

- Key Figures

  Quantifiable values, for example, number of employees

- Characteristics

  Required to determine key figures in accordance with different criteria; organizational unit and gender are examples of characteristics for the number of employees

Hierarchies

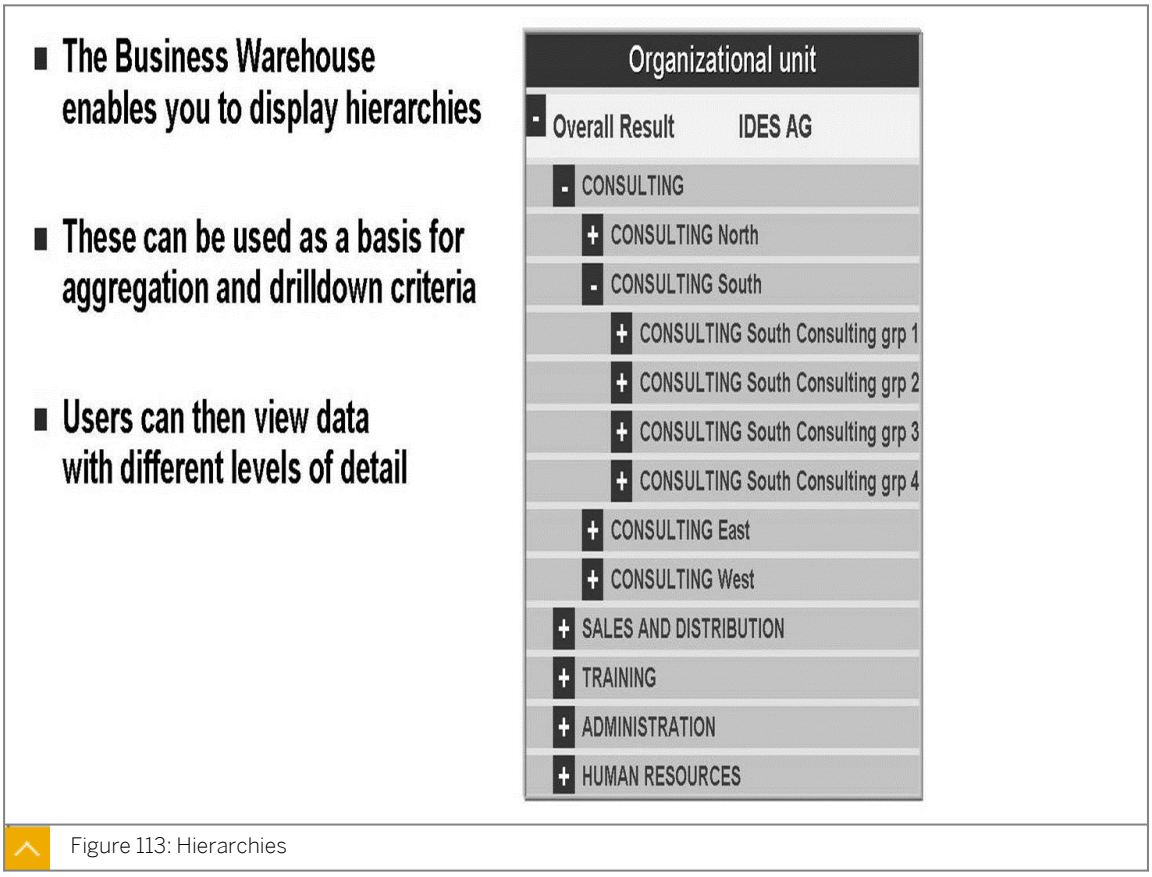


Figure 113: Hierarchies

Hierarchies are delivered in HR for the following types of reports:

- Organizational structure
- Cost centers
- Business events or business event groups
- Qualifications or qualification groups
- Age structure
- Capacity utilization levels

You can also create your own hierarchies.

Business Explorer

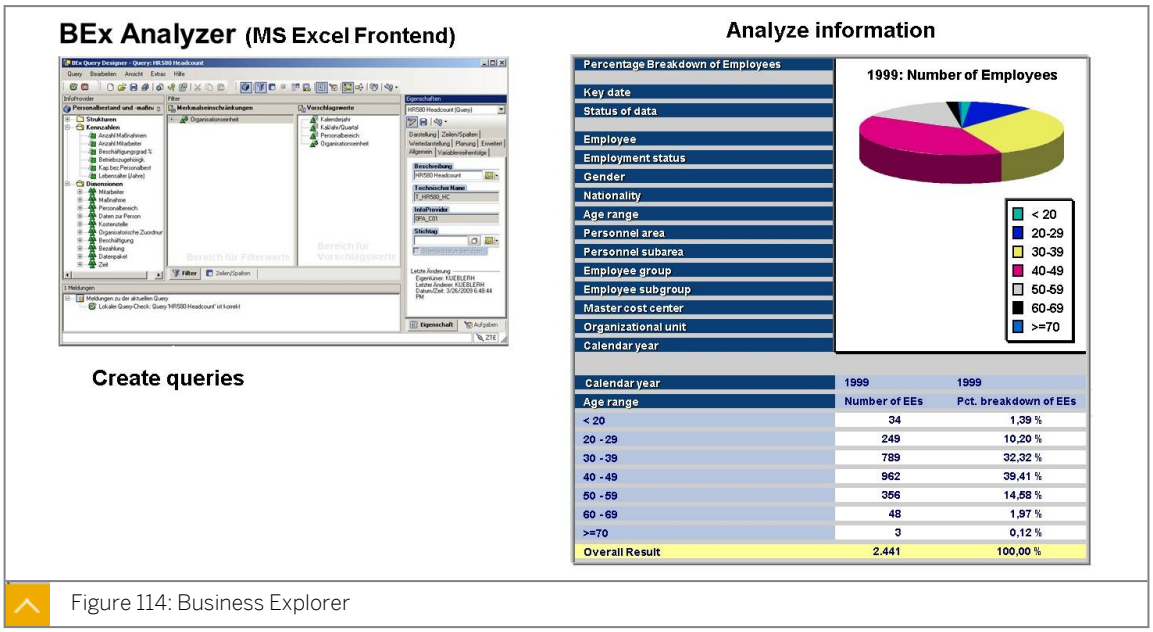


Figure 114: Business Explorer

SAP Business Explorer (SAP BEx) is used to report, analyze, and display data. BEx Query Designer enables you to define queries that are based on a selection of InfoObjects or predefined query structures from an InfoCube.

By navigating queries, you create different views of data. This enables you to analyze and display InfoCube data.

The BEx Suite is a comprehensive base of information for a variety of users from all areas of an enterprise. It supports standardized reporting, ad hoc queries, special reports, and individual online analyses.

Queries can also be delivered in BEx Web Analyzer by using the SAP Enterprise Portal. With BEx Web Analyzer, the user can easily access business evaluations and reports that are displayed in MS Excel.

SAP BEx consists of the following parts:

- The Report Builder in *BEx Analyzer* is used to create new queries and change existing queries. Data is displayed in MS Excel, which can be used to analyze it. All MS Excel functions are available (for example, functions that enable you to create graphics that you can then save in the report).
- *BEx Browser* enables you to make queries available to other users in the Internet or intranet. Users can start queries simply by double-clicking them. They can then be used to perform further analyses.

HCM Business Content

SAP BW users in HR are as follows:

- Management or heads of department
- HR department

- User departments such as Controlling and Administration

SAP BW provides you with operational data from a variety of areas within an enterprise.

Reports can be used to process data for decision making or information purposes.

Standard determination of key figures facilitates benchmarking between different enterprises, or within a single enterprise. Comparative key figures can be broken down to the business process level if the report has been defined accordingly. In HR, for example, they can be broken down to the employee level.

Business Content

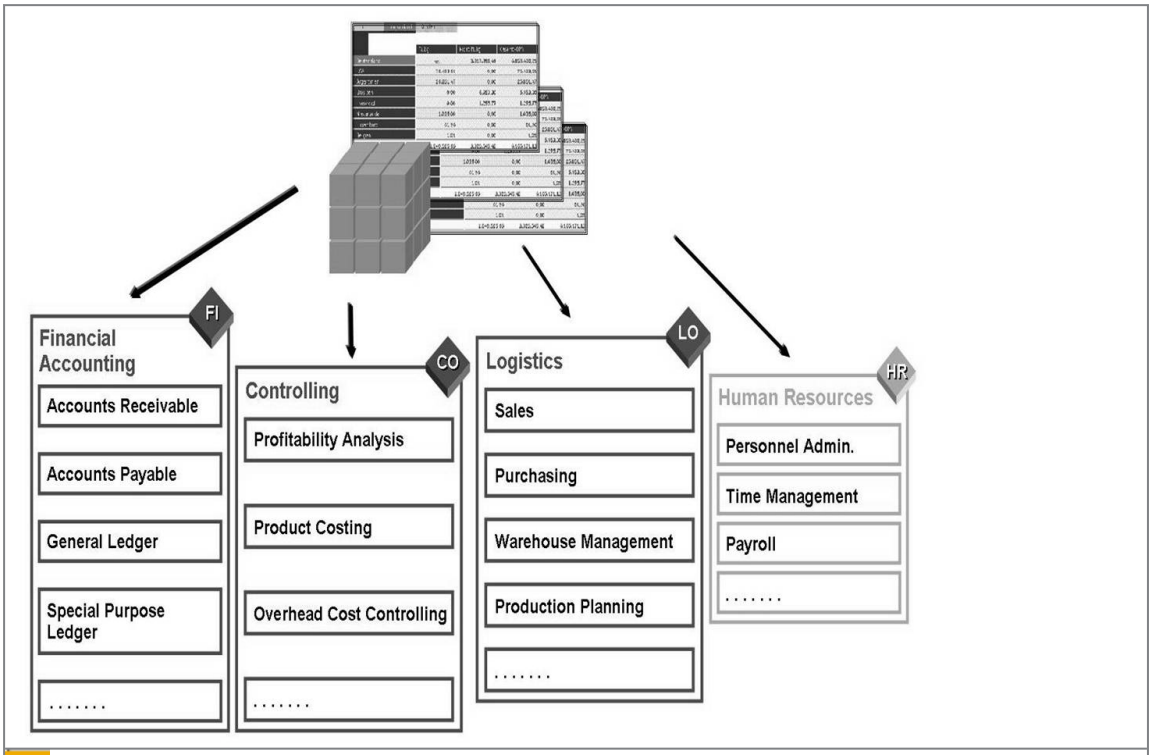


Figure 115: Business Content

SAP BW not only includes technology, but is also delivered with business content from Accounting, Logistics, and Human Resources. This is a major advantage compared with other data warehousing products. The business content provides the customer with optimum support that is tailored to the individual tasks of users.

SAP ERP HCM in SAP BW

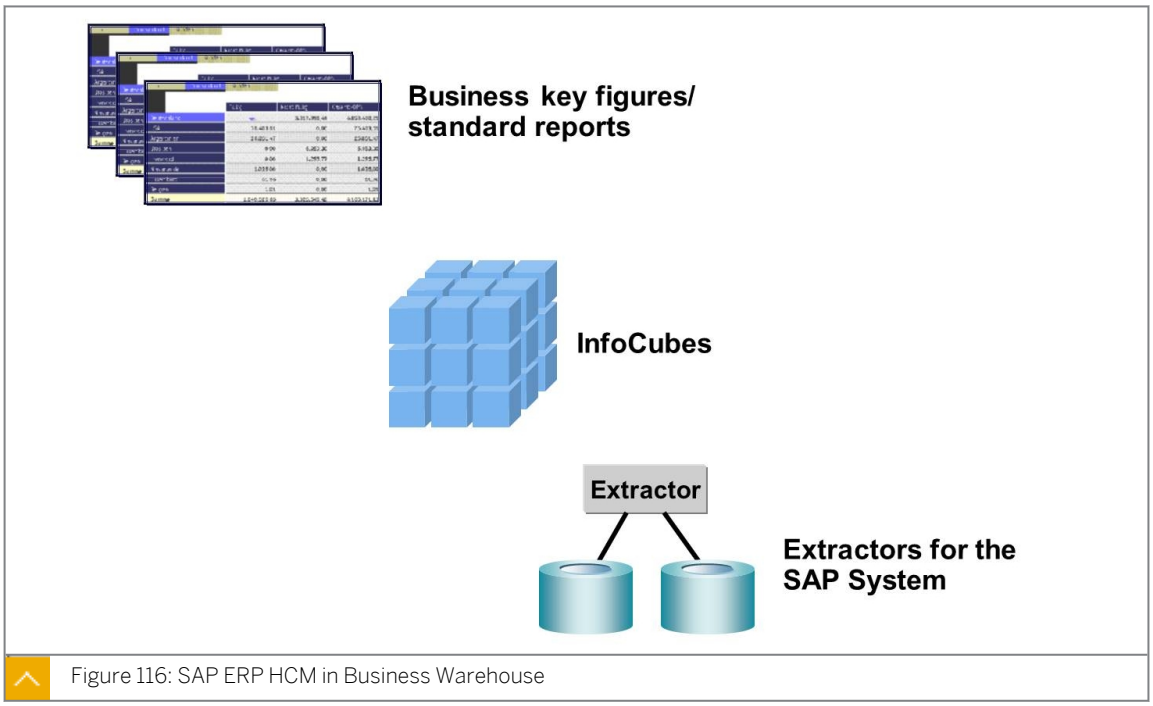


Figure 116: SAP ERP HCM in Business Warehouse

The business content makes it easier to report on, prepare, and retrieve data. Predefined standard reports and report templates enable you to create reports quickly and simply.

The business content comprises extractors, InfoCubes, and queries (business key figures and reports) for HR areas.

HR Areas in Business Content

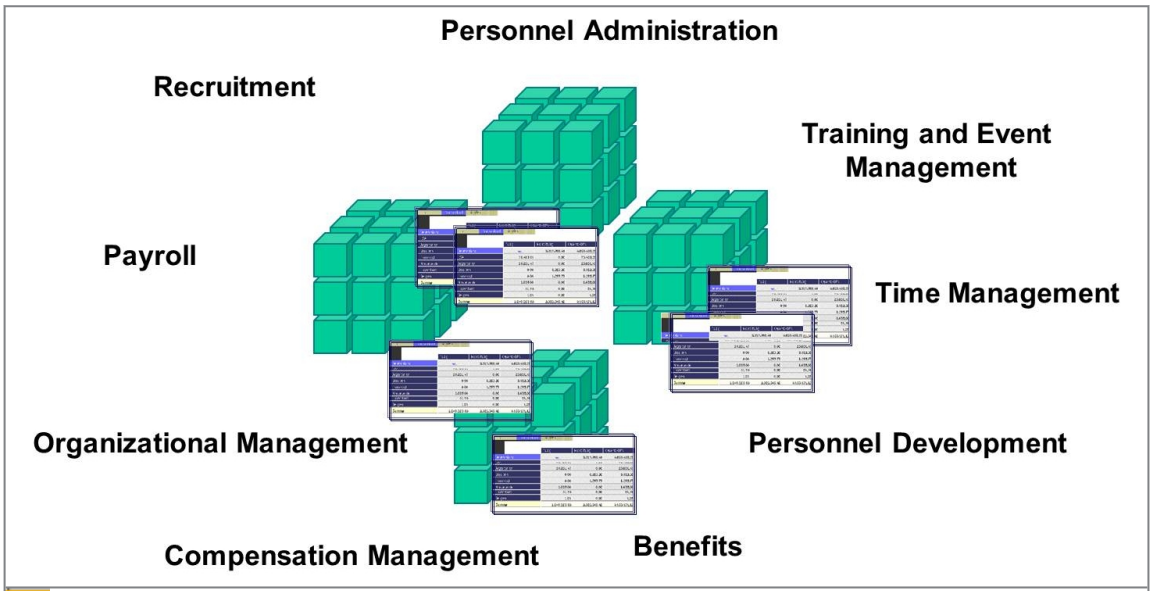


Figure 117: HR Areas in Business Content for HCM

Various HR areas and some examples of key figures are as follows:

Personnel Administration:

For example, headcount, personnel structure, leaving and rate, and average age

Applicant Management:

For example, number of applications or applicants, advertising, advertising costs, and recruitment success

Payroll:

For example, salary costs per organizational unit, wage type comparisons, and overview of salary costs

Training and Event Management:

For example, reports on attendance, cancellations, business event duration, fees, costs, and revenue

Personnel Development:

For example, qualifications per employee, proficiency of a qualification, and employees by qualification group

Time Management:

For example, overview of personnel times, leave, sickness, overtime, and cost center debiting

Organizational Management:

For example, overview of positions, occupied, vacant, and unoccupied positions, and full-time positions

Compensation Management:

For example, compensation analyses, average annual salary, bonus payments, position of employees in pay grade or pay grade level, and planned compensation adjustment

Benefits:

For example, cost analysis according to organizational criteria and cost analysis according to benefits criteria

Learning Solution:

For example, training by target group, test results, number of learning objectives achieved, and external course price

SAP E-Recruiting:

For example, application origin, candidate's qualifications, and number of postings

The SAP BW functions also enable you to create cross-application InfoCubes and queries or key figures, which are known as MultiProviders.

Working with HCM Queries and Key Figures in SAP BW

Predefined time series comparisons

	Number of EEs	Number of EEs	Number of EEs	Number of EEs
Organizational unit	2003	2004	Difference	Difference in %
Overall result for consulting dept	114	196	82	71,93 %

Calculation of averages

	Number of EEs	Number of EEs	Number of EEs	Number of EEs	Number of EEs
Employee group	1. quarter 2004	2. quarter 2004	3. quarter 2004	4. quarter 2004	Average of 4 quarters
Active	535	535	535	542	536,75
Retired	1	1	1	1	1,00
Freelance	10	10	10	14	11,00
	546	546	546	557	548,75

Figure 118: Business Content – Structures

HCM business content includes predefined queries and key figures, and structures for frequently used standard calculations and comparisons.

These structures enable you to compare time series or time-related calculations of averages, and can be used for any HCM query.

BEx Analyzer

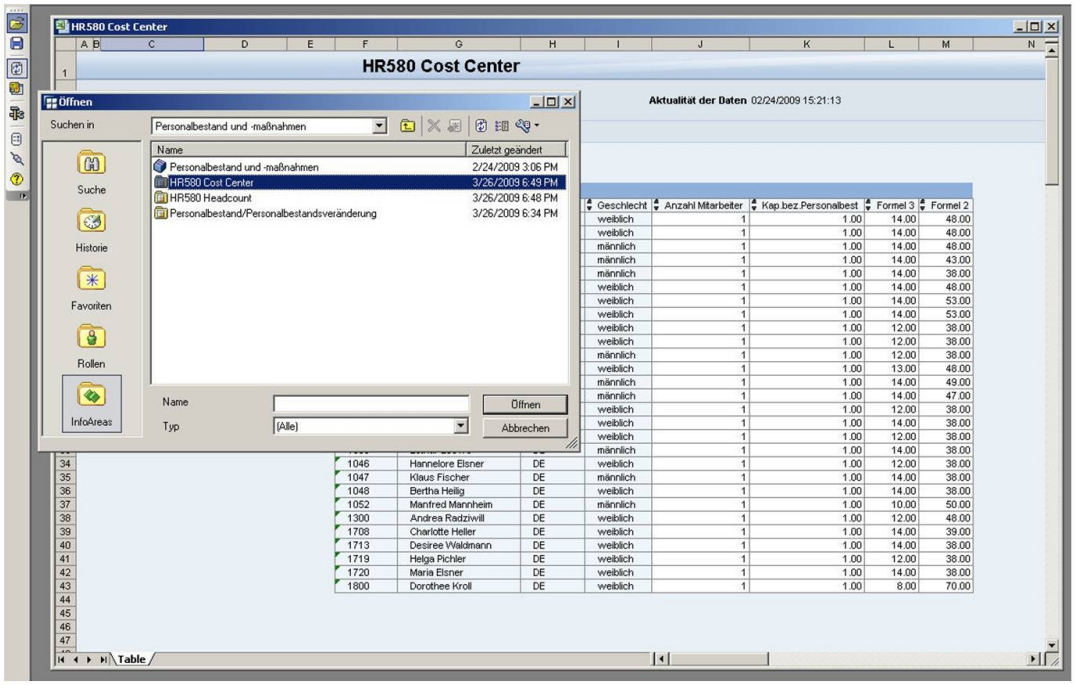


Figure 119: BEx Analyzer

In HR, communicating data to the people involved in a particular decision making process is an important aspect of reporting.

SAP BW enables you to retrieve reports and key figures using a portal. This accelerates data access, and ensures that all the people involved in making a decision are supplied with identical information.

You can create roles for the various user groups. Reports and key figures can be grouped together within these roles according to the tasks and issues concerned, and can then be easily accessed by using BEx analysis tools.

Roles are also included in HCM as business content. These roles already contain HCM queries.

Query Views

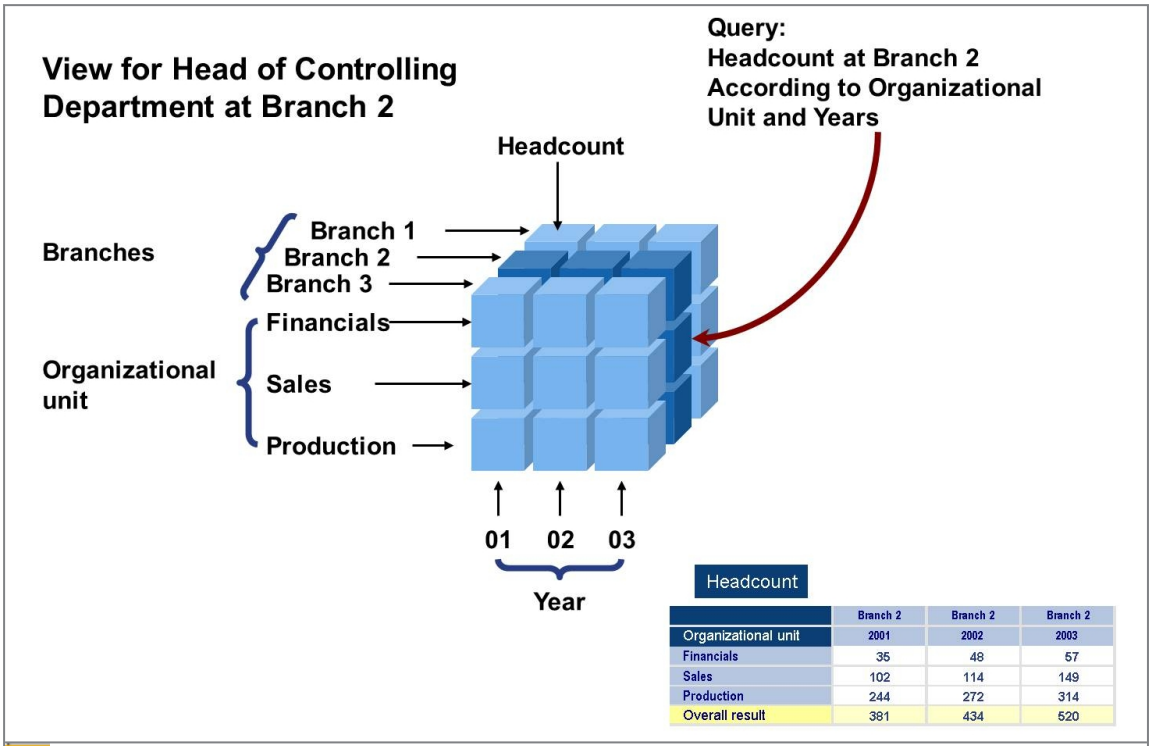


Figure 120: Query Views – An Example

The query view for the head of the Controlling department at a branch depicts the headcount of a branch according to organizational unit and year.

Navigation in a Query

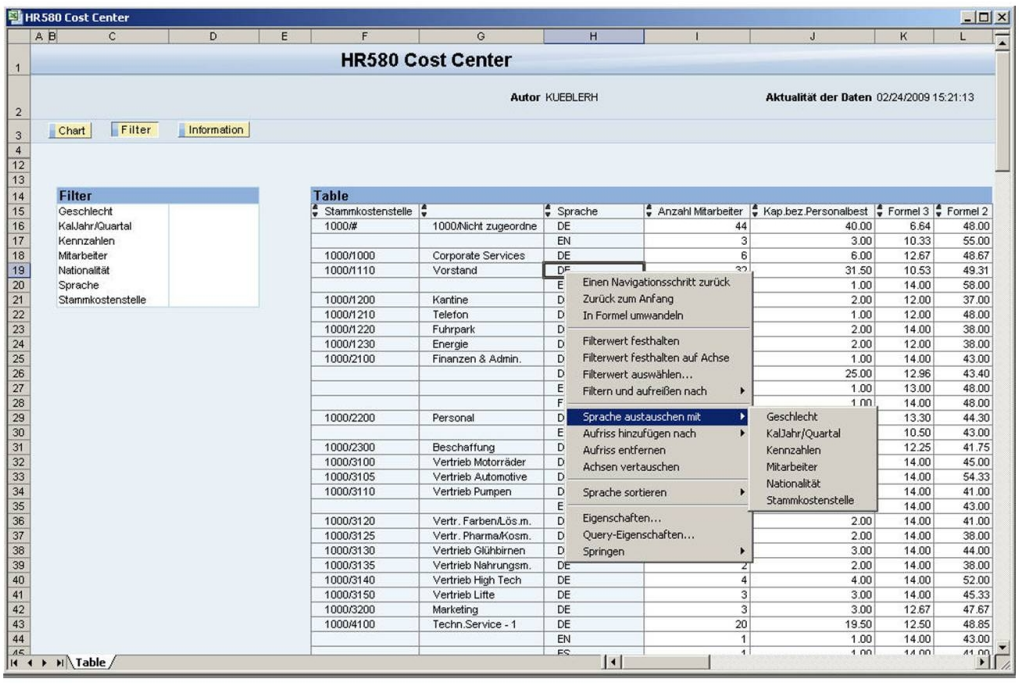


Figure 121: Navigation in a Query (BEx Analyzer)

You can use the characteristics that were added to the query definition for navigating.

The multi dimensional views provided by SAP BW mean that a single HR query covers a wide variety of standard reports. For example, the Headcount query in HCM enables you to depict the headcount according to organizational characteristics such as the enterprise's organizational structure, employee groups, personnel area, and cost centers, in addition to person related characteristics such as gender, age, or nationality.

The query also enables you to view a combination of characteristics. Within an organizational unit, for example, you can view the headcount according to gender or nationality. You can also drill down on data to the level of individual employees.

Most SAP queries in HCM provide customers with this degree of flexibility.

HR Web Cockpit

Figure 122: HR Web Cockpit – Example of Headcount Planning

You can also provide users with BW queries in the form of a Web Cockpit in the Web.

LESSON SUMMARY

You should now be able to:

- Outline the integration between HCM reporting and analytics using SAP BW
- Execute a BEx query

Unit 8
Lesson 2

Viewing HCM Reports with SAP BusinessObjects

LESSON OVERVIEW
This lesson explains how you can use the *SAP BusinessObjects application* for HCM reporting.

Business Example

In Human Capital Management (HCM), the data retrieved through the SAP Business Warehouse needs to be presented in various formats. For this reason, you require the following knowledge:

- An understanding of *SAP BusinessObjects*
- An understanding of dashboards

LESSON OBJECTIVES
After completing this lesson, you will be able to:

- View a HCM report in SAP BusinessObjects Dashboards

SAP BusinessObjects and HCM

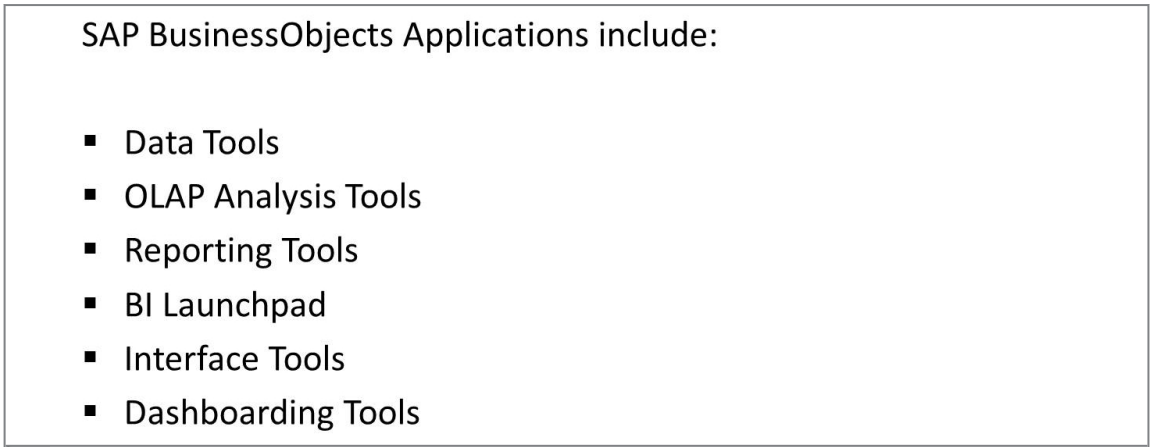


Figure 123: Overview of HCM in SAP BusinessObjects

Some of the SAP BusinessObjects application tools are as follows:

Data Tools:

- Enhance, transform, and load data (ETL).
- Data Services, Data Quality, Information Steward

OLAP Analysis Tools:

- SAP *BusinessObjects* Analysis, edition for Microsoft Office is a front end tool similar to Business Explorer (BEx) Analyzer, utilizing MS Excel and MS PPT.
- SAP BusinessObjects Analysis, edition for OLAP is an OLAP tool in the BI launch pad for working with multidimensional data.

Reporting Tools:

- Universes do not contain data. They are a mapping of fields and are used for building reports in SAP BusinessObjects Web Intelligence.
- Web Intelligence is a globally popular end user tool for building queries and designing reports based on universes.
- SAP Crystal Reports 2011 and SAP Crystal Reports for Enterprise are reporting tools used to create formatted reports.

BI Launchpad:

- The BI Launchpad is used for storing, managing and running reports.

Dashboarding Tools:

- SAP BusinessObjects Dashboards is a drag and drop visualization and dashboarding tool that you can use to turn interactive visualizations of data into personalized dashboards for executives and business users.

Dashboard Concept

A dashboard is a user interface that organizes and presents information in a way that is easy to read and visually appealing.

Examples of dashboards are as follows:

- Succession Planning Monitor

  Successor bench strength and succession planning for all key positions

- Utilization of Talents

  Overview of talents and assigned successors when staffing key positions

- Performance and Potential

  Current potential and performance of the employees in the area of responsibility

- Skills and Competencies

  Skills and competencies of all the employees, as well as the position requirements within the organization

SAP BusinessObjects Dashboards software is used to create analysis dashboards. Dashboards are interactive and user friendly, and are used by higher management.

Dashboards serve the following purposes:

- They bridge the gap between data analysis and visual presentations, empowering users to create interactive reports and applications.
- They are intuitive enough for beginners and versatile enough for advanced users.
- They allow users to create reports without having to learn programming languages.

- They allow users to create rich interactive presentations by pointing and clicking the mouse.
- They are integrated with MS Office products. This integration allows you to attach your reports to e-mail messages in MS Outlook or embed them into MS PowerPoint slides and MS Word documents.
- They are also integrated with Adobe Acrobat, allowing you to embed your reports in Adobe PDF files.

Connectivity

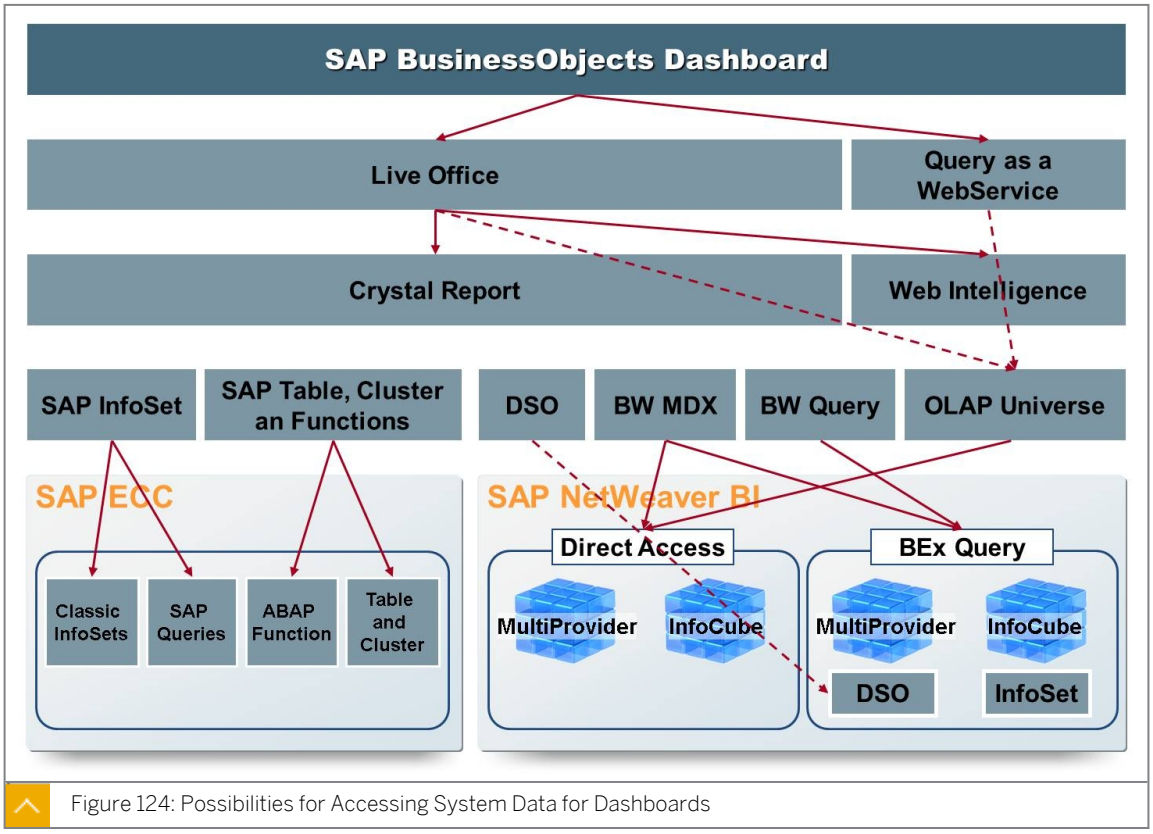


Figure 124: Possibilities for Accessing System Data for Dashboards

Dashboards connect to your SAP BusinessObjects data in the following ways:

- The visual model can connect directly to an SAP *BusinessObjects* universe through web services created with an easy to use utility, Query as a Web Service.
- Dashboards visualization can leverage SAP BusinessObjects Live Office to connect to a Crystal report, SAP *BusinessObjects* Web Intelligence document, or BW query.

Dashboards visualization technology can be integrated with SAP data sources.

Dashboards leverage Live Office and Web Services for connectivity.

You can use Live Office to create MS Excel workbooks in combination with SAP Crystal Reports and Web Intelligence that runs against universes (including OLAP Universes) connecting to SAP ERP and SAP BW. The data can be retrieved from pre-scheduled instances or on demand from Excel using Live Office.

Dashboards help you to combine multiple MS Excel spreadsheets (even though they are Live Office documents) with data from multiple data sources, and use the resulting document in the Designer.

Integration of HCM with SAP BusinessObjects Dashboards

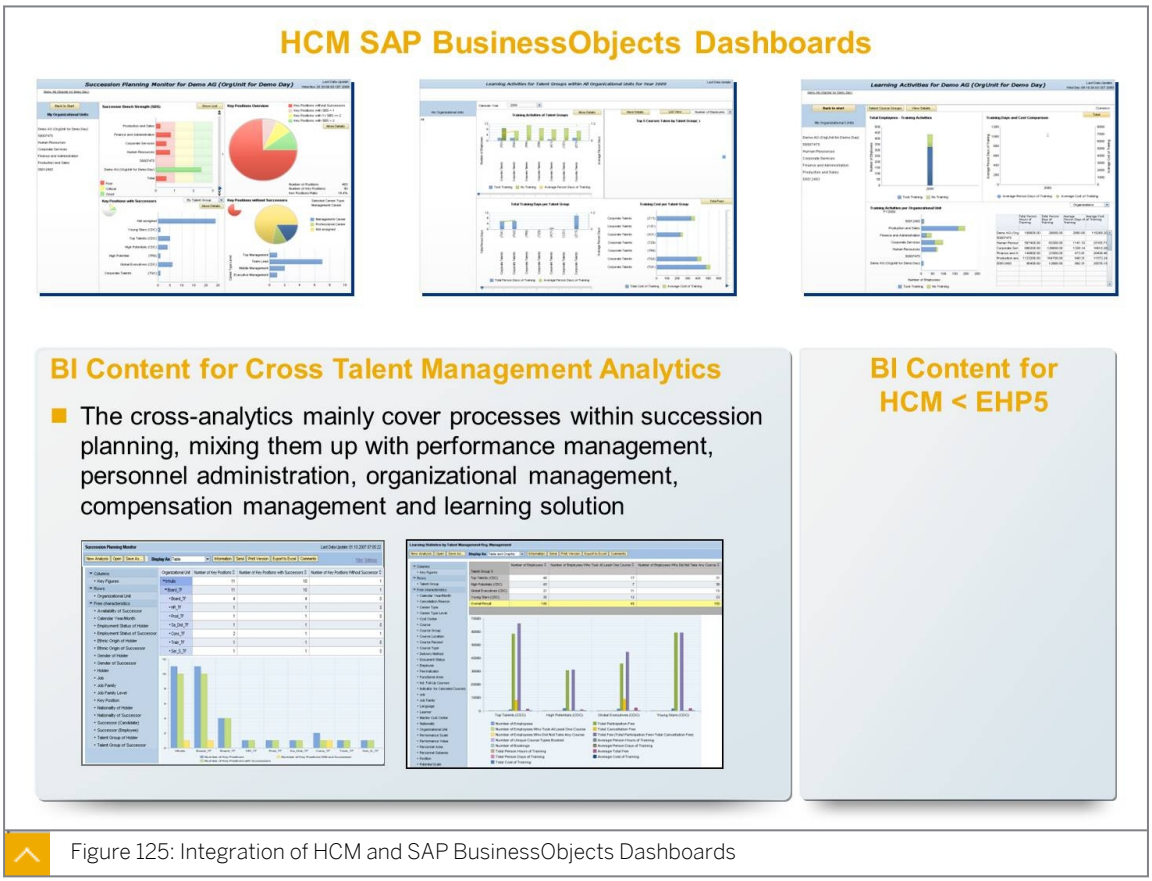


Figure 125: Integration of HCM and SAP BusinessObjects Dashboards

Customers of SAP Business Suite software have access to new business content.

Predefined and delivered SAP Crystal Reports and dashboards are delivered as embedded content within the standard business processes of SAP Business Suite applications.

All content is embedded in standard business processes of most SAP Business Suite applications such as ERP, CRM, SCM, PLM, and SRM.

SAP BusinessObjects and Their Integration Scenarios

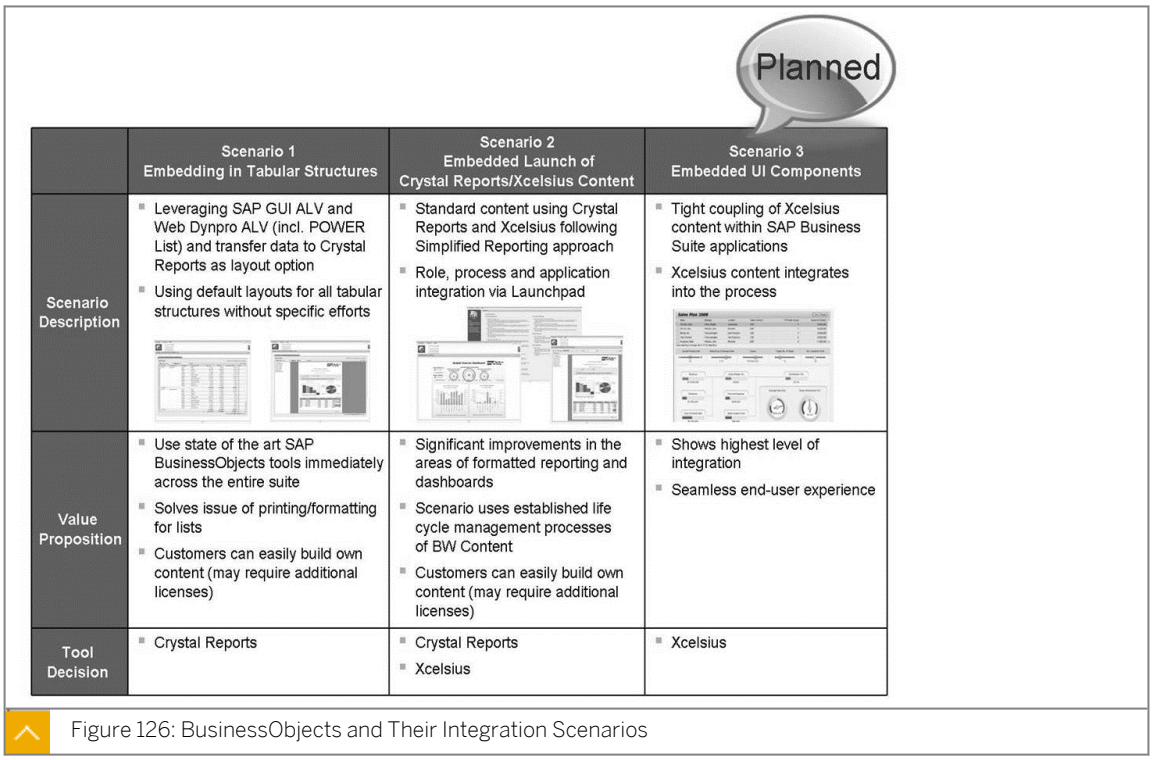


Figure 126: BusinessObjects and Their Integration Scenarios

This figure shows SAP BusinessObjects and their integration scenarios.

LESSON SUMMARY

You should now be able to:

- View a HCM report in SAP BusinessObjects Dashboards

Unit 8
Lesson 3

Identifying HCM Content for Operational Data Provisioning

LESSON OVERVIEW
This lesson reviews Human Capital Management (HCM) content for operational data provisioning (ODP).

Business Example

As an HCM analyst, you are responsible for generating various reports on HR data. You want to use operational data provisioning to generate analytical queries. For this reason, you require the following knowledge:

- An understanding of operational data provisioning
- An understanding of the available analytical queries

LESSON OBJECTIVES
After completing this lesson, you will be able to:

- List the HCM content required for operational data provisioning

Operational Data Providers

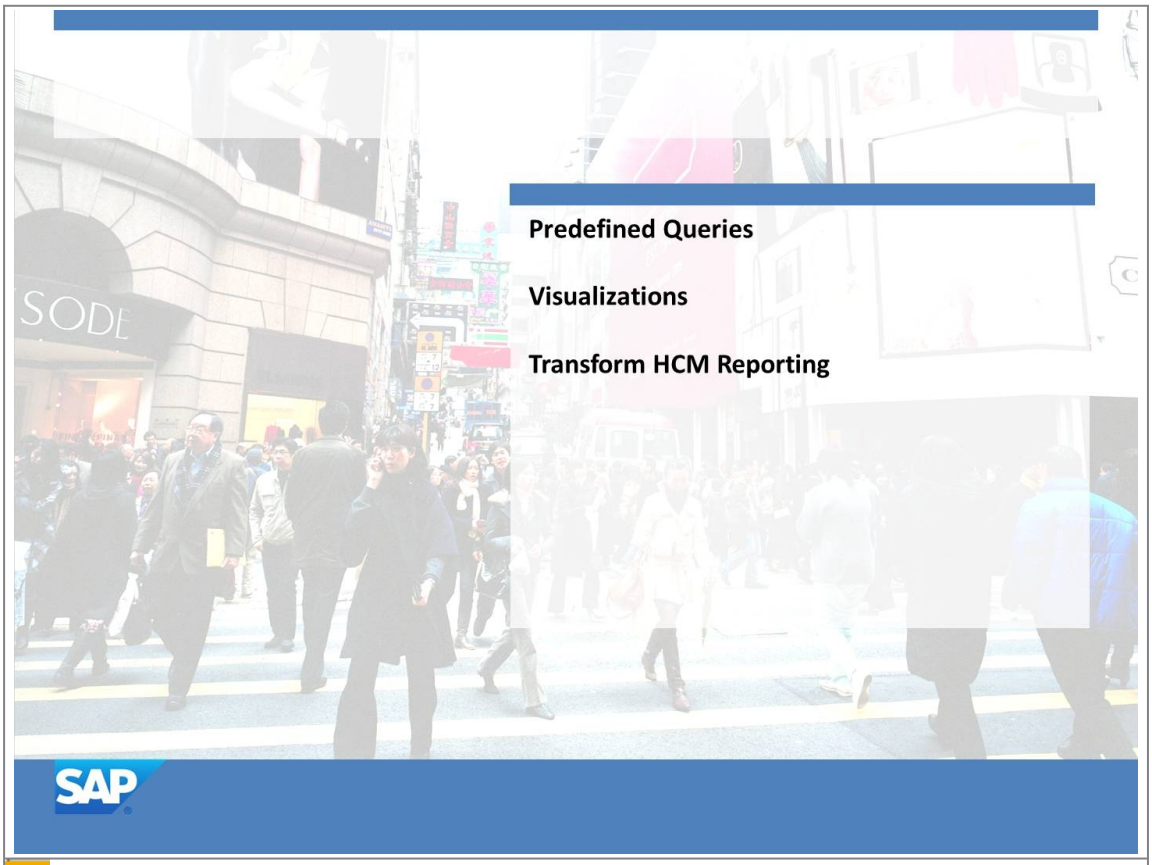


Figure 127: Workforce Analytics Operational Insight

An operational data provider (ODP) is the link between business data stored in the structure of DataSources and the requirements arising from Operational Analytics and the replication of mass data. The ODP defines interfaces for transaction data and master data.

Once implemented, these interfaces allow access to data for reporting and analysis, and for replication. For SAP BW DataSources with direct access, there is a generic implementation of ODP interfaces.

An ODP is defined in a joint modeling environment for search and analysis. In a search and analysis model, SAP BW DataSources or other data sources are imported as nodes. When an ODP is defined on a node, the node has analytical properties added to it. Analytical properties added to a node define items, such as whether the field is interpreted as a key figure or characteristic, whether the field is available as a navigation attribute, and which selection properties are assigned to a field.

For Operational Analytics, an ODP can be linked with other semantically related ODPs using relations that define foreign key relationships. The analytic engine can derive an InfoProvider from this kind of model. An InfoProvider of this type is known as a TransientProvider, because instead of being modeled in the same way as in SAP BW, it is modeled at query design time and created at runtime.

ODPs allow reporting and analysis on SAP BW DataSources in the business application's operative system, without having to replicate the data to SAP BW.

DataSources are not suitable for Operational Analytics as they are basic. A transaction data DataSource does not recognize the associated master data attributes and the DataSource for master data attributes does not recognize the associated texts.

Operational Data Provisioning uses ODPs to allow semantically-related DataSources to act as InfoProviders, so that the data is available to the Analytic Engine in an Operational Analytics scenario without the need for replication to SAP BW.

Definition of Different Terms Used in ODP

The definitions of the terms used are as follows:

- SAP Business Warehouse Accelerator

  Business Warehouse Accelerator

- TREX

  Text Retrieval and Information Extraction

- DataSource

  Set of logically-related fields which are provided to transfer data into business intelligence in a flat structure (the extraction structure), or in multiple flat structures (for hierarchies). DataSources include transaction data, characteristic attributes, characteristic texts, and characteristic hierarchies

- ETL

  Extraction, transformation and loading (ETL) (also known as ETTL - Extracting, Transforming, Transferring and Loading)

You require analytical reports, such as simple list reporting, multidimensional analysis, formatted reporting, or dashboarding. In the different scenarios, different User Interfaces (UIs) are needed to support analytical requirements; they all use the same data.

Data provisioning has to be unified in a way that the same data can be used by the different UIs while being independent of the consumption (the UI design does not depend on the origin of the data). A unified data provisioning has to support different data access scenarios such as direct access or data replication.

Operational data provisioning is a concept that unifies data provisioning for both analytics and search in a fully reusable way. ODP is designed in a common modeling environment for Enterprise Search and Analytics. ODP defines modern contracts for direct access and replication, and implements them generically for direct access enabled DataSources. The business logic, especially for transformations from a transactional to an analytical view of the data, is implemented by application development just once in the DataSource. This implementation is used for mass data read access in the different scenarios through the Operational Data Provider.

Scenarios Used for Mass Data Read

The scenarios used for mass data read include the following:

- Direct access from SAP BW
- Direct access in the back-end system
- Replication to SAP BW Accelerator (TREX)

- Replication to any (registered) ETL consumer (for example, Data Integrator)

If an SAP Business Warehouse Accelerator (TREX) is applied, then Enterprise Search and Analytics share the same index, which can also be used directly in the SAP BusinessObjects Explorer.

Business Requirement

Business applications normally store operative data in the form of business documents and master data. In SAP BW, DataSources and their extractors make it possible to access this data.

DataSources provide a flat, analytical view of the data in business documents and contain the business logic that derives an analytical view of the data from the transactional view.

DataSources are of the following types:

- Transaction Data
- Master Data Attributes
- Master Data Texts
- Master Data Hierarchies

Data Provisioning and Data Replication

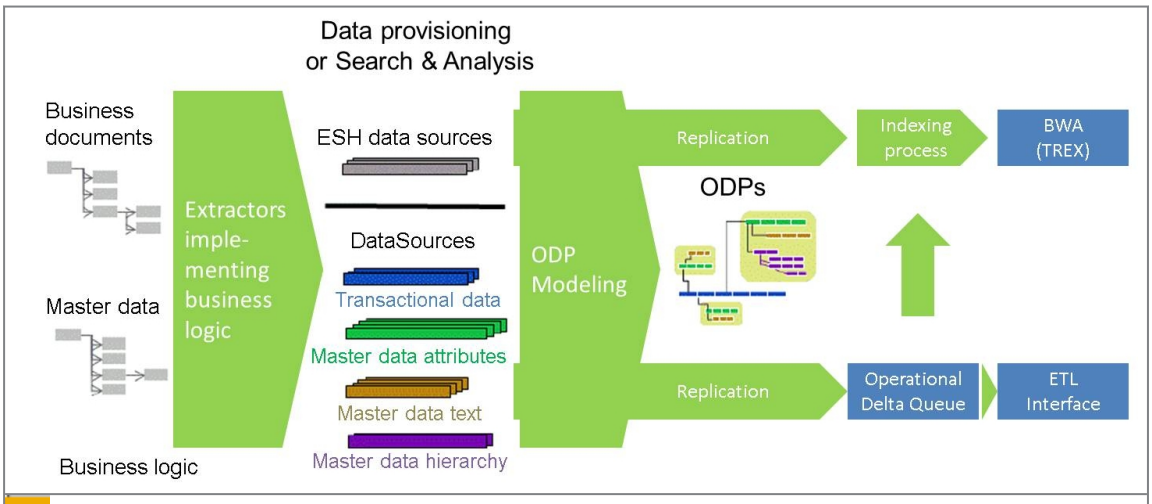


Figure 128: Data Provisioning and Data Replication

The figure illustrates how data provisioning works, including data replication using Operational Data Providers.

Data provisioning for ODPs is shown on the left side of the figure. The data provisioning is based on the extractors that implement the business logic. Many SAP applications, especially SAP Business Suite, provide BW DataSources with application extractors that provide consistent data for the analysis.

To support operational data provisioning, DataSources are given ODP properties and are linked with one another. As well as the SAP BW DataSources, there are SAP applications that provide data sources.

The right side of the figure shows how, in addition to direct access, operational data provisioning supports consistent replication of mass data.

Accelerated access to data is made possible by using SAP BW Accelerator. This makes it possible to index ODPs periodically. Indexing is a technique used to locate the required records in a database table quickly. Depending on the application extractor, it is possible to perform real time indexing. SAP BW Accelerator indexing is supported for DataSources.

Architectural Overview

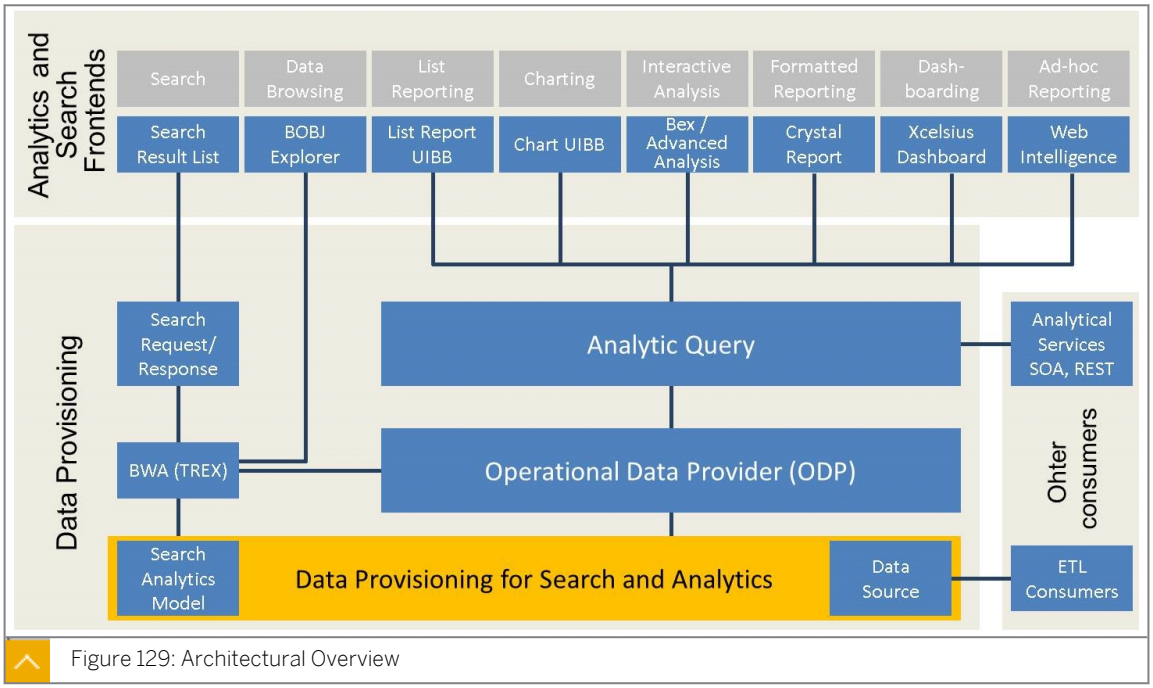


Figure 129: Architectural Overview

The application scenarios are as follows:

Operational Analytics:

Operational Analytics is used for decision making in operative business processes. You can use Operational Analytics to perform OLAP analysis on the application data locally in the application system. For Operational Analytics, you only need to perform minimal configuration of BW in your application system and do not need to set up a data warehouse. Replication of the data to an SAP BW system is not necessary. The application data can be accessed directly. The analysis performance can be improved by using SAP BW Accelerator.

Data Extraction and Replication:

Data extraction and replication includes replication to SAP BW Accelerator and SAP Data Services, for example. Delta mechanisms are also supported in data extraction and replication.

HCM Content for Operational Data Provisioning

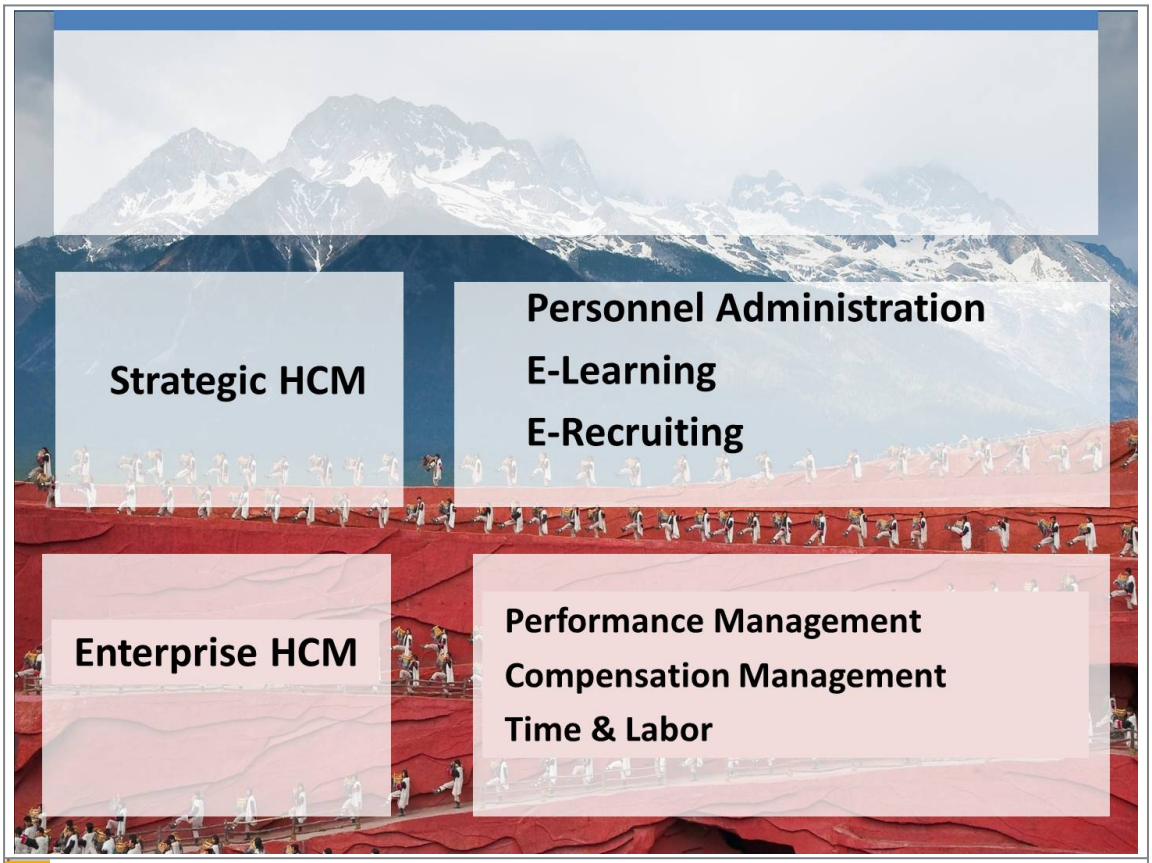


Figure 130: Align Human Capital for High Performance

Workforce analytics provides real-time insight and access to information to facilitate quick decision making. With operational data provisioning, you can view all levels of key processes at once.

ODP Based Content Bundles

Content bundles for HCM provide predefined queries that capture the key inputs of business performance.

ODP Based Content Bundles for HCM include the following:

- HCM_ERC_ANALYTICS_1 - E-Recruiting
- HCM_PA_1 - Personnel Administration
- HCM_PT_1 - Time Management
- HCM_LSO_1 - Learning Solution
- HCM_HAP_1 - Performance Management
- HCM_ECM_1 - Enterprise Compensation Management
- HCM_TMC_1 - Talent Management

Reporting Launchpad

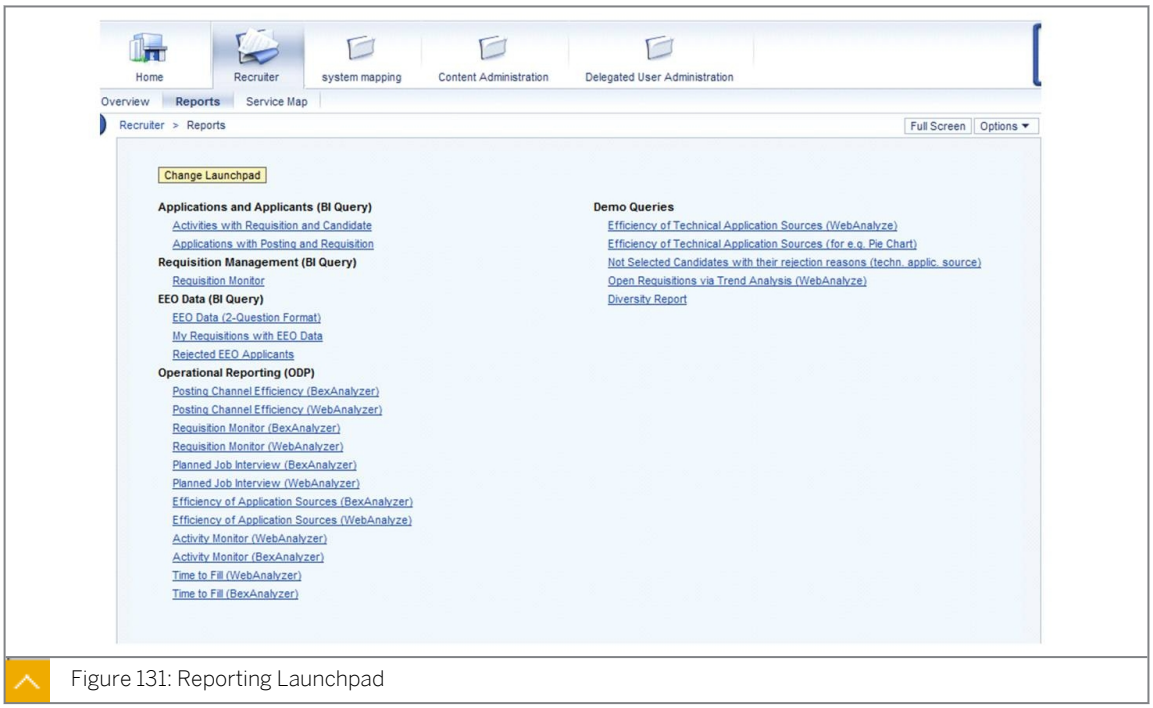


Figure 131: Reporting Launchpad

A reporting launchpad facilitates the organization of the queries and provides easy access to the available reports.

Queries for Time Management Time Types

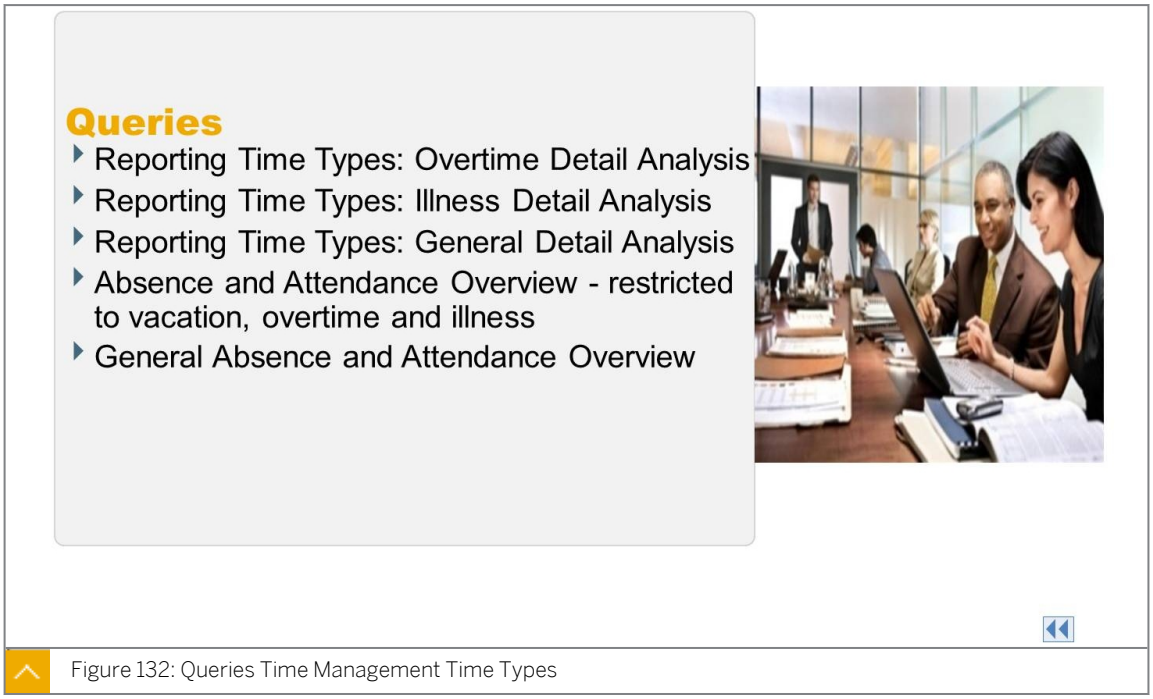


Figure 132: Queries Time Management Time Types

Delivered queries are set up with dimensions to provide detailed information. Dimensions include the information you want to report on. Characteristics are in the dimensions and provide the detail for the report.

A key figure is an InfoObject, which is something that can be measured. A key figure does not make sense until it is described by a characteristic. A key figure is stored in a fact table, and these fact tables are surrounded by dimension tables.

Examples of key figures are Headcount and Salary. Characteristics of these key figures could be Employees and Organizational Unit. Your analysis could contain salary information by organizational unit and employee.

Overview on Time Types Analysis

An example of a delivered time management query is Overview on Time Types. This query provides managers with information on accumulated absence, attendance, and overtime hours for employees they are responsible for. The Overview on Time Types query includes delivered dimensions and key metrics.

Key figures are displayed by organizational unit and other criteria for the number of absences, attendances, and overtime in number of hours and number of days for a specified time period.

The dimensions for the Overview on Time Types Analysis are listed in the following table:

Organizational Unit (Hierarchy)	Employee
Reporting Time Type	Personnel Area
Personnel Subarea	Company Code
Employee Group	Employee Subgroup
Pay Scale Group	Pay Scale Level
Pay Scale Type	Pay Scale Area
Business Area	Functional Area
Talent Group	Age Ranges
Gender	Length of Service
Nationality	Country
Region	Area of Country
Country Group	Contract Type
Employment Status	Key Position
Career Type	Career Type Level

Key Metrics for the Overview on Time Types Analysis

An example of the key metrics for the Overview on Time Types Analysis are as follows:

Number of Employees	Average Absence Days
Number of Overtime Hours	Average Overtime Hours
Number of Absence Days	Average Illness Days

Number of Illness Days	Number of Employees Who Exceed Thresholds Set Up for Overtime, Illness, and so on.

In the key metrics example, queries provide information to managers, business partners, and time administrators on cumulated absences, attendances, and overtime hours and days for the employees they are responsible for.

You can check time types and use various free characteristics to enable you to drill down and tailor the overview to specific groups of employees after the query is executed. OLAP does not have to gather this data when the report is first run. The information in free characteristics is available when needed.

Examples of delivered queries are as follows:

- Reporting Time Types: Overtime Detail Analysis - 0HCM_PT_T02_Q0001
- Reporting on Time Types: Illness Detail Analysis - 0HCM_PT_T02_Q0002
- Reporting on Time Types: General Detail Analysis - 0HCM_PT_T02_Q0003
- Absence and Attendance Overview (restricted to vacation, overtime and illness) - 0HCM_PT_T02_Q0004
- General Absence and Attendance Overview - 0HCM_PT_T02_Q0005

Queries in Personnel Administration and Talent Management

Queries for Personnel Administration and Talent Management are as follows:

Headcount / FTE Actual Results - 0HCM_PA_T01_Q0001	Number of Hirings / Hiring Rate - 0HCM_MP01_Q0001
Headcount / FTE Actual Results for Concurrent Employment - 0HCM_PA_T01_Q0002	Leaving Rate - 0HCM_MP01_Q0003
Headcount / FTE Trend Analysis for the last five years - 0HCM_PA_T01_Q0003	Expected Leaving Rate Analysis - 0HCM_MP01_Q0004
Headcount / FTE Trend Analysis for the last five years - 0HCM_PA_T01_Q0004	Leaving Analysis - 0HCM_PA_T02_Q0002
Quality of Hire - 0HCM_PA_T01_Q0005	Reminder of Dates - 0HCM_PA_T03_Q0001
Number of Actions - 0HCM_PA_T02_Q0001	

Personnel Administration ODP models include the following specifics and restrictions:

- The modeling of the Headcount and Full Time Equivalent (FTE) metrics is based on the last day of the month. For example: April 2011 represents a snapshot of April 30, 2011.
- The average headcount is calculated on a monthly basis (always the last day of the month).

- The data models always include Talent Management information. You must consider this when assigning authorizations for queries.
- Performance and Potential Values are displayed as they appear in the respective infotypes (7408 and 7409). Previous Performance Values takes into consideration the Customizing of Talent Management and Talent Development.

Analysis in E-Recruiting

Some of the dimensions available for analysis in E-Recruiting are as follows:

Organizational Unit	Position
Lead Recruiter	Country Group
Hiring Manager	Functional Area
Calendar Year / Month	Branch
Company	Requisition Status
Activity Type	Job-Specific Requisition

Some of the key metrics used for analysis in E-Recruiting are as follows:

Number of applicants	Number of hires (per channel, female, male, internals, and externals)
Number of offers	Number of requisitions
Applicant ratio	Number of interviews, rejections, and offers
Acceptance versus offer rate	Time to fill per requisition in days, time to fill average

Insight-to-Action Through Report-to-Report Interface

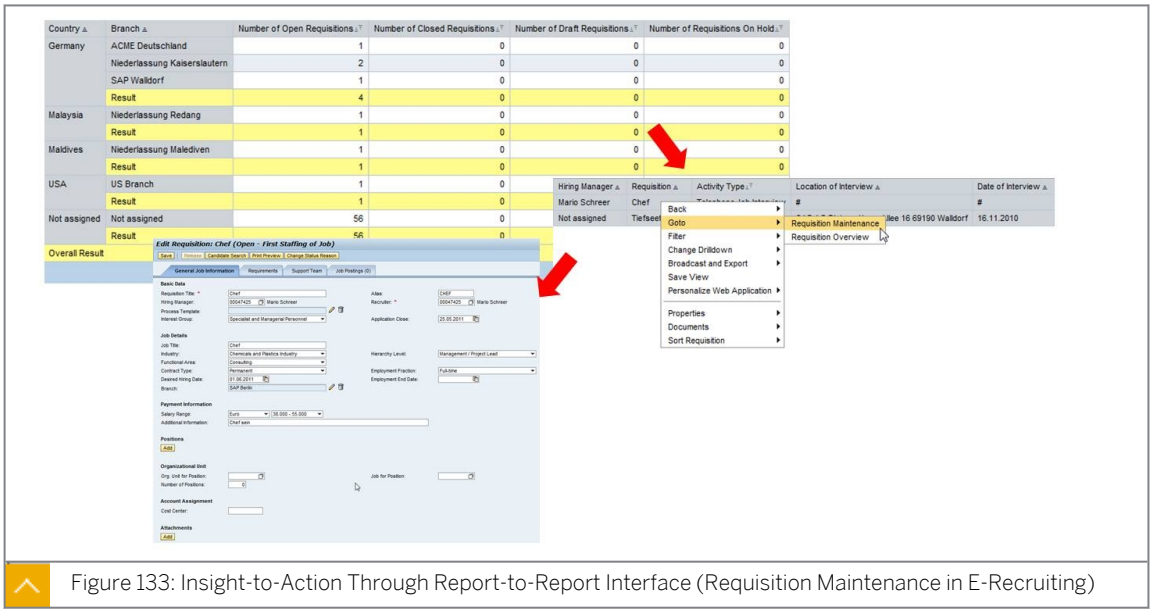


Figure 133: Insight-to-Action Through Report-to-Report Interface (Requisition Maintenance in E-Recruiting)

The report-to-report interface enables you to review data using one report and move directly from that report to another document to complete required tasks.

In this example, you can review the number of draft requisitions by country and move directly to an overview of a specific requisition or to the maintenance screen for a specific requisition. The report-to-report interface allows you to investigate and follow up on the original document quickly and easily from one screen.

The following queries are included in E-Recruiting:

Efficiency of Posting Channel:

Query 0HCM_ERC_T05_Q0001 analyzes the efficiency of posting channels to identify which are the most successful.

Planned Interview:

Query 0HCM_ERC_T06_Q0001 provides an overview of planned interviews.

Efficiency of Application Source:

Query 0HCM_ERC_T07_Q0001 analyzes the efficiency of the application sources for a specific period to identify the most successful application source.

Activity Monitor:

Query 0HCM_ERC_T08_Q0001 provides an overview of all activities performed in a specific period to analyze and optimize the recruitment process.

Time to Fill:

Query 0HCM_ERC_T08_Q0002 provides details of how much time was needed to fill a vacancy.

Diversity Report:

Query 0HCM_ERC_T10_Q0001 provides an overview for a specific period of the data relevant for equal employment opportunities and the distribution of candidates to be hired, based on ethnicity, gender, and racial categories.

Requisition Monitor:

Query 0HCM_ERC_T09_Q0001 provides information on requisitions.

Authorizations

Figure 134: Authorization concepts

The authorization concepts are as follows:

Standard Authorizations:

Standard authorizations allow users to execute a query.

Analysis Authorizations:

Analysis authorizations allow users to execute a query depending on what is entered in the selection fields for a query. This authorization can use authorization objects and structural authorizations.

LESSON SUMMARY

You should now be able to:

- List the HCM content required for operational data provisioning

Learning Assessment

1. Enterprise and organizational goals are part of operative planning in SAP ERP Human Capital Management (SAP ERP HCM).

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

2. Which of the following options are characteristics of SAP BW?

   Choose the correct answers.

   ☐ A Data is stored in the form of InfoCubes.

   ☐ B Drilldown is not possible.

   ☐ C Data originates from SAP and non-SAP systems.

3. To display HCM data, SAP BusinessObjects solutions are used in the _____.

   Choose the correct answer.

   ☐ A back end

   ☐ B front end

4. Operational Data Providers allow reporting and analysis on SAP BW DataSources in the business application's operative system without having to replicate the data to SAP BW.

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

5. SAP Business Warehouse Accelerator (SAP BW Accelerator) indexing is not supported for DataSources using Operational Data Providers (ODPs).

   Determine whether this statement is true or false.

   ☐ True

   ☐ False

6. Which of the following options are areas in HCM content for Operational Data Provisioning for Strategic HCM?

   Choose the correct answers.

   ☐ A E-Learning

   ☐ B E-Recruiting

   ☐ C Performance Management

   ☐ D Compensation Management

Learning Assessment - Answers

1. Enterprise and organizational goals are part of operative planning in SAP ERP Human Capital Management (SAP ERP HCM).

   Determine whether this statement is true or false.

   - [ ] True
   - [X] False

2. Which of the following options are characteristics of SAP BW?

   Choose the correct answers.

   - [X] A Data is stored in the form of InfoCubes.
   - [ ] B Drilldown is not possible.
   - [X] C Data originates from SAP and non-SAP systems.

3. To display HCM data, SAP BusinessObjects solutions are used in the _____.

   Choose the correct answer.

   - [ ] A back end
   - [X] B front end

4. Operational Data Providers allow reporting and analysis on SAP BW DataSources in the business application's operative system without having to replicate the data to SAP BW.

   Determine whether this statement is true or false.

   - [X] True
   - [ ] False

5. SAP Business Warehouse Accelerator (SAP BW Accelerator) indexing is not supported for DataSources using Operational Data Providers (ODPs).

   Determine whether this statement is true or false.

   ☐ True

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6. Which of the following options are areas in HCM content for Operational Data Provisioning for Strategic HCM?

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   ☒ A E-Learning

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